Policies for Stagflation:
Focus on Supply

Ontario Economic Council

REFERENCE

2

HC
117
.S741
.P766
v.2

Digitized by the Internet Archive
in 2018 with funding from
Ontario MInistry of Finance

https://archive.org/details/policiesforstagf00onta_0

339.5
Vol.2

Policies for Stagflation: Focus on Supply

ONTARIO ECONOMIC COUNCIL SPECIAL RESEARCH REPORT

VOLUME 2

©1981
ONTARIO ECONOMIC COUNCIL
81 Wellesley Street East
Toronto, Ontario
M4Y 1H6

Printed in Canada

ISSN 0225-591X
ISBN-0-7743-6132-8

These papers reflect the views of the authors and not necessarily those of the Ontario Economic Council or the Government of Ontario. The Council establishes policy questions to be investigated and commissions research projects, but it does not influence the conclusions or recommendations of authors. The decision to sponsor publication of these papers was based on their competence and relevance to public policy.

HC
117
.S741
.P766
v.2

Contents

VOLUME 2

SOME THOUGHTS ABOUT SUPPLY POLICIES 1
by George E. Freeman

Discussion 8

THE PRODUCTIVITY PROBLEM 11
by Lester C. Thurow

Comments by Paul Davenport 35

Discussion 43

RAPPORTEUR'S REMARKS 55
by Michael A. Spence

FINANCIAL MEASURES AS 'SUPPLY-SIDE' POLICIES 63
by John Grant

UNDERSTANDING AND TREATING STAGFLATION IN CANADA'S OPEN ECONOMY 67
by Lorie Tarshis

SPEAKERS AND PANELISTS 93

Some thoughts about supply policies

George E. Freeman

I'm sure most of you must find it as bizarre as I do that a central banker would be invited to talk on the subject of supply policies. It seems to me that central bankers couldn't do anything about supply even if they knew something about it, and that raised a question in my mind as to why I was here. Fortunately Dr Tarshis during lunch gave me an explanation which suits me. He was explaining to me the relationship between the origins of medieval banking and the origin of the idea of purgatory in the medieval church, and he said that at the time it was quite clear to all right-thinking people that bankers, since they were practising usury, were destined for hell. However, the idea came up that there could be a holding tank on the brink of hell and you could buy your way into it if you paid an adequate price. As a banker I would certainly like to manage to keep teetering on the edge of my eventual descent into hell by paying my price, and I guess my price is that I'm going to have to talk to a luncheon group on supply policies.

The problem I want to talk about today has to do with supply responses in the economy to demand policies aimed at reversing the persistent tendency for Canada's inflation rate to rise to higher and higher levels.

Suppose for the sake of argument that the demand policies being followed were successful in gradually moderating the trend rate of increase of aggregate money expenditure in Canada. As the growth rate of nominal GNE slows down, so must the growth rate either of the quantity of goods and services produced, or of the prices at which they are sold, or some combination of the two. It would be very comforting to governments and central banks if they could count on suppliers of goods and services to respond promptly to the slackening growth of demand in their markets by accepting correspondingly smaller price and wage increases in order to

avoid cutbacks in production and jobs. That would permit an early slowing of the pace of inflation without large transitional effects in the form of reduced output and employment.

But all sorts of reasons can be, and are, advanced for believing that suppliers of goods and services will in fact tend to respond rather differently - not forever, but perhaps for an uncomfortably long time. They will, it is said, resist scaling down the size of the price and wage increases to which they have become accustomed much more strongly than they will resist cutbacks in production and employment.

To what extent is this rather bleak view of the supply behaviour to be expected in response to disinflationary demand policies well founded? To the extent that it does seem to be soundly based, are there any remedies available which might help us achieve a gradually improving cost and price performance, without having to resign ourselves to a prolonged period of sluggish economic growth?

The effective capacity of an economy to produce goods and services at any moment is of course not unlimited. The basic determinants of capacity include the size of the economy's existing real resources, the efficiency with which existing management and labour skills, technology, and institutional practices enable these resources to be used to produce goods and services, and the degree to which the resources available can readily be adapted to produce on a profitable basis the pattern of output currently in demand. Gradual changes in these underlying factors broadly determine and similarly limit the trend rate of increase of an economy's effective productive capacity over a period of years.

Economists are also familiar with the notion that as the overall operating rate of an economy rises closer and closer to the limits of its existing productive capacity in response to a rapid expansion of demand, supply bottlenecks of various kinds will begin to loom on the horizon in more and more areas of the market. This will enable suppliers of goods and labour services to obtain larger price and wage increases than they otherwise could, given the much reduced risk of being undercut by competing suppliers and losing sales volume. Conversely, as demand expansion slows down and the overall operating rate of the economy declines, excess capacity and an oversupply of labour will begin to emerge in more and more areas of the market. This will make it increasingly difficult for suppliers of goods and labour to obtain such large price and wage in-

creases without incurring the risk of losing sales and jobs.

Is it reasonable to expect there to be some aggregate level or range of operating rates in relation to productive capacity between these two extremes, which, if maintained more or less consistently in an economy not subject to major supply shocks, would be unlikely to put strong upward or downward pressure on the overall trend of prices and costs? Many economists think so, although they have not yet come up with a more satisfactory label for what they mean, than terms such as 'the natural rate of unemployment,' or, 'the level of capacity utilization consistent with non-accelerating inflation.'

If there is indeed some rough upper limit of this kind to the levels of capacity utilization at which our economy can be expected to operate without generating faster inflation, it would seem to be important to establish as objectively as we can where it might lie, and to give the existence of this limit considerable weight in the formulation of current economic policy.

There has been a lot of wishful thinking on this matter in the past, and in many quarters there still is. Thus estimates are frequently made of how much output the economy would be capable of producing if it were to operate right up to the limits of its physical capacity, without regard to the degree of accelerating inflation this could be expected to generate. Such estimates are obviously suspect if you believe, as I do, that growing, chronic inflation is bound to do increasingly serious cumulative damage over time to the effective functioning of the economy. These highly suspect estimates are then compared with the actual output of the economy in order to arrive at some figure purporting to measure how much potential output is being lost as a result of a failure on the part of the authorities to stimulate demand sufficiently. The figures produced in this manner are often, quite predictably, enormous. I would suggest that, at the very least, output gaps of this kind should be arrived at by comparing actual output with the quantity of output realistically achievable without generating further acceleration of the rate of inflation.

It would also seem important to recognize some of the other implications of an upper limit to capacity utilization in the economy, beyond which we should not be surprised to see our rate of inflation accelerate. An economy in which the level of activity had risen to reach this critical range of capacity utilization would not have to come to a full stop in order to avoid the risk of accelerating inflation. Its output could continue to

grow in line with the growth in its productive capacity, and of course, if it grew at that rate, that would not raise its rate of capacity utilization into the danger area. Now whether this would mean a high rate of growth or a low one would basically depend on how rapidly the productive capacity itself of the economy was expanding. If it were at a low rate, faster demand expansion by itself could raise output growth only by risking faster inflation. But there might well be other areas of policy in which effective action could be taken to permit faster growth without inviting faster inflation - a question to which I intend to return later.

It also follows that the maintained level of capacity utilization in the economy that would be consistent with a declining trend rate of inflation would have to be lower than that required merely to keep inflation from accelerating. How much lower would depend partly on how rapid a decline in the inflation rate was the objective of policy, and partly on how strongly suppliers of goods and services tried to resist adapting their wage and price behaviour to the moderation of market demand. Here again the question arises whether there might not be significant scope in practice for effective policy action to hasten the desired change in wage and price setting behaviour.

There is one additional observation I would like to make about the relationship between the degree of pressure on capacity that is allowed to emerge in an economy and the associated trend of its inflation rate. Not only is the growth rate of capacity itself, for a variety of reasons, subject to change over time, but the same is true of the price and cost behaviour likely to be associated with a given degree of pressure on this productive capacity. I think there is convincing evidence that over recent years both have changed in ways that unfortunately have greatly increased the difficulty of improving our cost and price performance. The trend rate of increase of the productive capacity of our economy had undoubtedly slowed down, while at the same time the inflationary character of the price and wage responses evoked by a given degree of pressure on capacity has strengthened markedly. In part the reasons for this have to do with underlying factors such as demographic trends, the impact of much more expensive energy, and so on. But there have also been deep-seated changes in expectations and behaviour, stemming from what people have learned from many years' experience of growing inflation. In addition the rapidly expanding role of government has favoured a correspondingly rapid

development of institutional arrangements that provide a growing number of influential groups in the economy with varying degrees of insulation from the need to adapt to market forces - arrangements that help to prop up costs and prices, or even to keep pushing them up, in the face of slackening market demand. We probably cannot do much about some of these things, but perhaps something useful could be done about others, and that's what I would like to turn to now.

From what I have said so far, it should be apparent that I too, as a central banker, share the concern felt by many economists that an improving price and cost performance in Canada is unlikely to be achieved very quickly by demand policies alone, even with the economy operating at relatively conservative levels of capacity utilization and growing considerably more slowly than we have been accustomed to in the past. What I do not believe is that we have the option of using demand policies to generate a substantially higher rate of growth and level of capacity utilization than those that seem to be in prospect. Such effects would not last long; we might have a temporary blip in growth but I do not believe it would be very durable. The main lasting effect, I think, would simply be a further escalation of our underlying inflation rate. The question really is, do we have the option of taking other policy initiatives that could realistically be expected to improve Canada's growth prospects during the transition to lower inflation.

Some economists who share my view of how important it is to break the grip of chronic, growing inflation on the Canadian economy argue that the demand policies required to bring this about would be much more acceptable to the public if they could be supplemented by effective policies on the supply side to raise productivity and growth and perhaps to combat more directly the apparent downward rigidity of costs and prices. They are also concerned about how demand policies should be conducted in the face of a major supply shock, such as the series of large increases in energy prices that seem to be in store for us here in Canada over the next few years. They do not want us to accommodate any more inflation than can be helped, but at the same time they do not want to see economic activity depressed any more than can be helped.

I can assure you that these same concerns are very much on our minds at the Bank of Canada. If there is a realistic hope of achieving a more satisfactory outcome by enlisting the help of other policy initiatives

in addition to demand policies, we would be the last to reject such help if we could get it. But if such help is not really possible, or is not forthcoming, we will nevertheless have to press on in our own area of responsibility doing the best we can.

I might as well admit at the outset that I am not terribly optimistic about the chances of getting much help from supply policies very quickly in improving the growth performance of the Canadian economy as the attempt is being made to bring inflation under better control. There does not yet seem to be more than partial knowledge of the various factors which have caused the trend rate of productivity improvement in countries like Canada to decline to the extent that it has over recent years. That makes it correspondingly difficult to know where to turn to find effective ways of raising the growth of productivity. It is often suggested that one of the more promising areas for constructive action in this regard lies in the micro policies of the various levels of government. Much could be done, it is said, by reducing the disincentive effects of existing systems of taxation, by weeding out unnecessary regulatory measures that hobble enterprise, by putting greater emphasis in industrial development policies on identifying and backing potential winners than on propping up obvious losers, by adopting a more selective and cost-conscious approach to environmental and similar affirmative action measures, by rationalizing manpower policies and labour codes, by supporting research more handsomely, and so on. No doubt many of the measures adopted by governments as a means of promoting worthy causes do indeed have unintended adverse side-effects on the economy's productivity performance and could stand design improvements, or in some cases deserve to be scrapped in the interests of achieving a more efficient and dynamic economy. I am all in favour of such efforts. But realism suggests that policy improvements of this kind are rather difficult to come by for all sorts of practical and political reasons and such progress as we can realistically expect is unlikely to be rapid enough to improve our near-term growth prospects in any great way.

What about policies designed to help bring about a more prompt scaling-down of the size of price and wage increases as the growth of nominal demand moderates? Incomes policies of various kinds, both voluntary and involuntary, have been tried at times in Canada, the most recent being the mandatory system of wage and price controls introduced

in 1975. Temporary schemes of this kind hold out the hope that any unavoidable damage they might do to the efficient functioning of the economy is unlikely to be lasting, but by the same token such improvements in the process of wage and price determination as they achieve are difficult to maintain once the program has ended. That may have something to do with why alternative approaches, such as tax-based incomes policies, seem to be taken more seriously nowadays than the idea of making direct wage and price controls a permanent feature of our society. I remain to be convinced that any form of tax-based incomes policy has yet been devised that would meet even minimum standards of workability, equity, or reliability in achieving the results desired from it. Some economists believe that the downward rigidity of established patterns of wage increase is largely attributable to emulative trade union behaviour under a fragmented, staggered-date system of collective bargaining, with multi-year contracts. They too, as far as I can see, hold out little hope of any early movement in North America towards a more centralized German or Japanese-type bargaining system of annual wage rounds.

In addition to institutional rigidities of various kinds, an important reason why price and wage behaviour tends to be highly unresponsive, at least in the short run, to a moderation of demand growth would seem to lie in the area of expectations. The public has heard repeatedly from governments and central banks that they are determined to stand tough against inflation, whatever difficulties this may create in the short run. But in practice the degree of resolution shown has rarely matched the intent, and the public has repeatedly seen the inflation rate dip for perhaps a year or two and then rise again to a higher level than ever. It should not be surprising that the public has learned from this experience not to put too much trust in official declarations promising firm action against inflation. How would an employer feel who had believed what he had been told, had taken a costly strike in order to get a wage settlement that would seem reasonable in a less inflationary environment, and then found that the rug had been pulled out from under him because the authorities had not really meant what they said. I don't see any cure for this, other than for policy-makers to be very careful to promise the public no more than they feel sure they can achieve, and then to show by their subsequent performance that they mean what they say. I think that this might well eventually ease some of the difficulties now encountered in trying to moderate inflation through demand policies.

Discussion

J.H. BENNETT: Is there anyone here who would like to ask one or two questions before we go on to the next part of the program?

QUESTION: Carl Beigie suggested this morning that we should watch real interest rates instead of M1. Would you care to comment on that?

GEORGE FREEMAN: It is not that we do not pay some attention to what seems to be happening to real interest rates. There are a number of difficulties though. One is that the real interest rate we are talking about is the nominal rate deflated by an expected rate of inflation that is in the minds of the public, but it doesn't seem to be directly observable unless you run sufficiently frequent Gallup polls. One can, however, look back afterwards, take the pattern of behaviour of nominal interest rates, deflate it by the inflation subsequently experienced, and see what has happened.

There is no doubt that when you do such exercises you get a wide array of scatter diagrams. There really is no such thing as 'the' interest rate. There are many, many sub-markets, and there are very many maturities of loans, so that you are talking about rates in the paper market, institutional short rates, bond rates, and so on, and you can deflate all these with a whole range of deflators. You can use the CPI, or you can use the consumer price deflator, or you can use the GNE deflator, or whatever you want, and you will certainly get a big array of scatter diagrams. However, the main impression you will get from this whole collection of pictures is that for substantial periods - periods as long as two or three years during the 1970s and earlier - the real rate of interest in this country on most measures seems to have been negative. That is more true of short rates than of long.

The idea of actually trying to run the policy by steering the real short rate has a few difficulties too. It implies that we could rig the price - this whole vector of prices in credit markets - any way we wanted and for as long as we wanted, whether the participants in the market felt we could get away with it or not. I think there is evidence that the power even of a central bank willing to print money to a limited extent really does not extend that far. After all, back in the late forties we

pegged bond prices. I'm not sure that Parliament would want us to try that again. Anyway I think there is great difficulty in pegging interest rates if operators in financial markets think you are never going to get away with it. They will bet against you, and it's like betting on a pair of twos against a royal flush.

P. FORTIN: George, I am not sure what you meant in your remarks on the credibility of the authorities in holding down inflation. Are you simply saying that the bank should keep increasing the rate of growth of M1 or any kind of definition of the money supply? Or are you opening up some new horizon concerning, for example, some suggestions made by William Feldner in the United States about the big stroke hypothesis now applied by Mrs Thatcher in the UK? Or are you opening some other avenues?

GEORGE FREEMAN: No, no, this is the same old story. What happened was that in the mid-seventies, looking back over twenty-five years during which for all sorts of worthy reasons we had tried to prevent interest rates from rising and the exchange rate from rising in the short run because we felt we had a lot of unemployment and so on, we could see basically what we had done. We had repeatedly accommodated progressively rising rates of inflation with progressively rising rates of monetary expansion on any money supply definition you want to have. We had done that for twenty years, and we were now stuck. We were allowing money to expand at rates far in excess of the physical capacity of the economy to produce goods and services, so we were obviously financing a very high inflation rate, and the question was how we were ever going to get off this treadmill.

We decided we were going to have to get off it somehow if the next twenty years was not going to be a repeat of the intermittently upward-ratcheting inflation of the past twenty. Of course we decided not to try to do it overnight and subject the economy to a cold bath. We tried to do it as gradually as we could, believing that perhaps if one could do it very, very gradually, maybe if the growth of the money supply declined from 12 per cent to 11 per cent a year over a whole year, the economy might adapt to such a terrible shock. That is basically the line we set out on, and we are pretty deeply committed to it. We've tried to leave ourselves some room as to the pace at which we do this, so we have not

settled on some pre-ordained schedule, and we try not to do something that makes economic nonsense or is really going to throw us into serious difficulties. But that is basically the course we are on, and it would be very hard to change our minds about that.

QUESTION: What do you say on wage and price controls, do you regard them as successful in the past, and would you support or attempt them in the future? We have heard a number of commentators, in some cases in surprising quarters, mention this as a possibility.

GEORGE FREEMAN: We have seen various experiments with controls around the world. A lot of them were disastrous because it was believed at the time that if you put the controls on you could run demand policies at the same time fairly flat out. Of course all that does is blow up your control system.

The Canadian experiment in the mid-seventies was launched in the context of demand policies that were in fact trying to moderate rates of growth in nominal GNE which had got up to 15 per cent year after year for more than two years, so that at least the demand policy settings were providing reinforcement for the program. The record of the experiment in the mid-seventies was mixed. There are a lot of drawbacks in trying to design systems that risk creating all sorts of distortions in the economy in order to get what you want.

The same problem arises with tax-based incomes policies. We had a whole team of experts brought in by Jack Young's prices and incomes commission in 1970 - a group of tax accountants and compensation specialists working full time for six weeks to try to devise a tax-based incomes policy that anybody would dare put forward to ministers, and we were not successful. Obviously you'd rather have an incomes policy related to price incentives, so that people who felt it worth their while to take a larger increase than the established norms could do so but pay a price. A mandatory system has not got that flexibility.

Anyway, whatever help we got during the mid-seventies from controls was hard to maintain once the controls program had ended. A lot of people seem to feel they want to get back to where they would have been if there had never been any controls. So I can't give you a flat answer as to whether or not I am in favour of controls. That really depends on how effective a system you can get, considering the costs involved.

The productivity problem

Lester C. Thurow

INTRODUCTION

The productivity problem is not a mystery. It is explainable in terms of specific industrial problems, shifts in the supplies of capital and labour, and exogenous shocks such as energy prices. Unfortunately many of the causes are not reversible. Those that are reversible - such as the slower growth of the capital/labour ratio - are unfortunately consistent with neoclassical incentives. Neither cause nor cure can be found in market imperfections. Market incentives are calling for a period of lower productivity growth to absorb the baby boom that followed the second world war, but our societies do not want to live with the consequences of the market. As a result the cure will have to take the form of market interventions designed to go against, and not with, market incentives.

A case can be made for the market intervention based on international political and military necessities, the democratic problems of delivering falling standards of living, and obligations to the baby boom generation; but each of our societies needs to think out its goals.

To cure these problems our societies will have to cut consumption and substantially raise the fraction of GNP going to investment. They will have to find better methods for moving funds into sunrise industries quickly. They will have to learn to disinvest and avoid propping up the sunset industries. Given that sunset industries always have more political clout than sunrise industries, this is going to be difficult.

Regional differences are going to have to be overcome since the market is calling for large shifts in the regional distribution of economic activity. But it is important to distinguish between absolute growth and per capita income growth in this rivalry. Rapidly growing regions do not necessarily have rapid growth in per capita incomes.

The North American economies face the most difficult economic problem. They face a crisis in that if current trends were to continue over the next ten to twenty years they would be in disastrous shape, but no individual year is a crisis. Thus they do not have a political crisis that they can use to engender changes in the status quo.

THE PRODUCTIVITY PROBLEM

Though the popular press is fond of saying that the United States has caught the British disease, that is not true. The British disease is supposedly cancerous labour-management relations leading to low productivity growth. America's industrial disease has little to do with poor labour-management relations. And if you remember that less than 20 per cent of the American work force is unionized, it could not be otherwise.

But what are the characteristics of the disease confronting the United States? If you are a strict neoclassical economist America has no disease. Everything that has happened to lower productivity is perfectly consistent with the axioms of neoclassical theory and is in fact just what that theory would require.

Thus it is necessary to think carefully about the justifications for government market interventions designed to accelerate productivity growth. The necessary interventions cannot be defended as 'abolishing market imperfections.' Exactly what are we trying to accomplish? Without answering this question it is not possible to say what supply-side policies should be adopted to accelerate productivity growth.

But first to the causes of productivity decline. I am going to focus on the problem in the United States (because I know the sources of the decline in my country) and leave it to those of you who are experts on the Canadian economy to decide the extent to which our productivity problems have common causes and solutions.

During 1979 American productivity fell 2.1 per cent in the private economy. This decline would not be a source of concern if 1979 had been a recession year. Productivity often declines when output is falling (workers are not laid off as fast as output falls), but 1979 was not a recession. Real output was growing, if only slowly, and the current recession did not begin until early 1980. As a result 1979 is unique in American economic history: it is the first year with rising output and

falling productivity.

While 1979 is historically unique, it is unfortunately not a radical departure from recent experience. It merely marks a shift into the negative range after a long period of declining productivity growth. From 1948 to 1965 productivity grew 3.2 per cent a year. This was followed by a 2.3 per cent growth rate from 1966 to 1972 and a 1.1 per cent growth rate from 1973 to 1978 (Council of Economic Advisers 1980, 246).

SOUCES OF THE DECLINE

The basic strategy of this section is to look at the sources of productivity decline through a three-layer grid. The first grid consists of a detailed look at the productivity decline industry by industry. By definition, all of the decline can be attributed to some industry. But in what industries is the decline caused by factors specific to that industry rather than generalized factors that affect the entire economy?

The second grid consists of capital and labour. How much of the decline can be attributed to reductions in the quantity or quality of capital and labour? Here again, statistically, all of the decline can be attributed to capital and labour. But the interesting economic question is to separate the cases where declines in the quantity and quality of capital and labour caused the productivity problem from those where they merely reflect the productivity problems caused by other factors.

Finally there is a third grid composed of adverse shocks - energy prices and availabilities, rules and regulations - and their effects on productivity. The shocks on this grid will show up as lower productivity on the other two grids, but the real causes of the problems may lie on the grid. Energy problems, for example, will cause productivity problems for certain industries and may affect capital or labour supplies.

An examination of a detailed industrial breakdown does little to dispel the gloom (see Table 1). Only two industries (wholesale trade and services) had a faster rate of growth of productivity from 1965 to 1972 than from 1948 to 1965, and only two industries (communications and finance) were able to improve on their 1965 to 1972 performance in the 1972 to 1978 period. (Detailed 1979 industrial data are not yet available.) While no industry experienced falling productivity in the first period, one industry experienced falling productivity in the second period (construction), and

TABLE 1
Growth of industrial productivity (annual average percentages)

Industry	1948-65	1965-72	1972-78
Agriculture, forestry, fisheries	5.0	4.1	1.7
Mining	4.3	2.4	-4.2
Construction	3.4	-1.8	-1.8
Non-durable manufacturing	3.3	3.2	2.6
Durable manufacturing	2.8	2.3	1.2
Transportation	3.1	2.4	1.7
Communications	5.4	4.5	6.8
Electricity, gas, sanitary services	6.3	3.4	1.3
Wholesale trade	3.2	4.0	0.0
Retail trade	2.6	1.8	1.2
Finance, insurance, real estate	2.0	0.8	1.1
Services	1.2	1.6	0.7
Private business economy (total)	3.2	2.3	1.1

SOURCE: U.S. Department of Commerce (various years) Tables 6.2, 6.11

in the third period this industry was joined by another (mining).

Since there are large differences between industries in the levels of productivity (in 1978 productivity was almost five times as high in finance as it was in agriculture), shifts in the industrial mix can have a large impact on aggregate productivity (Table 2). National productivity is enhanced if high-productivity industries are expanding or if low-productivity industries are contracting. Conversely, productivity is reduced if low-productivity industries are growing or if high-productivity industries are contracting.

Agriculture - the end of an era

From 1948 to 1965 the industrial mix was shifting so as to enhance productivity gains. In 1948 agriculture's productivity was just 40 per cent of the national average. Every worker released from agriculture and retained by industry represented a jump of sixty percentage points in productivity. And millions of workers were released. From 1948 to 1965, 9.1 billion manhours of work (or 8 per cent of the total number of hours worked in the entire private economy) left agriculture to enter industrial employment. But this process was slowing down in the 1965 to 1972 period (only 1.8

TABLE 2

Levels of industrial productivity

	1948		1978	
	Output per manhour (1972 $)	Percentage of the national average	Output per manhour (1972 $)	Percentage of the national average
Agriculture, forestry, fisheries	1.48	40	4.96	60
Mining	6.04	161	11.30	138
Construction	4.16	111	5.85	71
Non-durable manufacturing	3.44	92	8.67	106
Durable manufacturing	4.25	114	8.49	104
Transportation	4.15	110	9.09	111
Communications	4.15	110	20.66	252
Electricity, gas, sanitary services	5.66	151	21.79	266
Wholesale trade	4.51	121	10.09	123
Retail trade	2.74	73	5.18	63
Finance, insurance, real estate	15.01	401	23.49	286
Services	3.58	96	5.07	62
Average	3.74	100	8.20	100

SOURCE: U.S. Department of Commerce (various years) Tables 6.2, 6.11

billion manhours were released from agriculture), and it stopped entirely in the 1972-8 period (less than 0.1 billion manhours were released).

As agriculture declined from 17 to 5 per cent of all hours worked, it made a major contribution to aggregate productivity. A very low productivity industry was getting smaller, and its workers were being transferred to jobs with much higher productivity. But this source of national productivity growth had to end, as it did after 1972. With the end, however, comes an explanation for about 14 per cent of the observed drop in productivity growth between the first and third periods.

But there is another way in which agriculture has had an effect on aggregate productivity. Table 1 records a dramatic drop in the growth of agricultural productivity from 5.0 per cent to 1.7 per cent a year. Though statistically correct, the decline is misleading and has already been reversed.

As acreage controls were dismantled in response to grain shortages, millions of low-productivity acres were brought back into production in 1973. Partly as a result of this structural change and partly as a result of the concomitant corn blight, productivity fell 4 1/2 per cent in 1973. By 1974 it was back up to 1972 levels, and since 1974 agriculture productivity has grown faster than it did in the 1948-65 period (Council of Economic Advisers 1980, 310). But this temporary dip in agricultural productivity explains another 3 per cent of the aggregate productivity decline between the first and third periods.

As a result agricultural factors explain 17 per cent of the national productivity decline. Some of this decline has already been reversed (the 3 per cent), but most of it (14 per cent) is irreversible. It simply marks a new stage in our industrial development.

A mystery in construction

Construction productivity has been falling continually since the late 1960s and is now only 79 per cent of what it was in 1965. If construction productivity had continued to grow at its 1948-65 pace throughout the entire period, another 17 per cent of the decline in aggregate productivity would have disappeared.

To say that 17 per cent of the decline has been identified, however, is not to say that there is a cure for 17 per cent of the problem. The decline in construction productivity is a major mystery. Since no one knows what caused it, no one knows how to reverse it.

Various explanations have been advanced, but none of them is entirely convincing. The problem may even be an untrue statistical artifact produced by errors in the way output is measured in the construction industry. Since construction does not produce a homogeneous output, it is difficult to measure how much output is being produced. Dollar expenditures on construction must be deflated by some price index to yield real output. And if some government statisticians overestimate construction inflation, others will underestimate construction output. But if output is underestimated, productivity will also be underestimated, since productivity is simply output divided by hours of work.

Some evidence points in this direction. From 1954 to 1977 construc-

tion output is thought to have been up 58 per cent, but the use of construction materials (steel, concrete) rose 133 per cent (Stoker 1979). Do 1977 buildings take twice as many materials as 1954 buildings? Maybe, but hardly likely. On the other hand the government makes extensive use of private indexes of construction costs in calculating its own price index. If the government estimates are wrong, then major builders such as the Turner Construction Company and major users of construction such as the American Telephone and Telegraph Company and the Bureau of Public Roads do not really know what it costs them to build.

Alternatively, construction productivity may have bogged down in the fights over nuclear generating plants (a major part of construction) or in a shift from building simple interstate highways across the wide-open space of Kansas to building the West Side Highway in New York with its millions of wires and pipes to be moved before construction can even begin. Or workers may simply be lazy and doing less work per hour than their fathers.

While there is also no doubt that construction is a large part of the national decline, there are a great many doubts as to what can be done about it.

A geological blow in mining

The reasons for the decline in mining productivity are as clear as those in construction are mysterious. Mining productivity in 1978 was only 77 per cent of what it was in 1972, but there is a simple explanation.

Approximately 80 per cent of the answer is found in oil - the major mineral 'mined' in the United States. America has simply reached a stage of geological depletion. Production is falling in old oil wells, and new wells yield less oil per well drilled. As a consequence it takes more hours of work to produce a barrel of oil. And this geological fact of life explains about 80 per cent of the decline in mining productivity.

The remaining 20 per cent of the explanation is found in the other minerals mined in the United States. Here environmental protection and occupational safety probably play the most important role; there is little evidence of rapid depletion. If open-pit mines have to be filled and the land restored to its natural contours, more hours of work are required to mine a ton of coal. If better ventilation and more tunnel supports are required to protect underground miners, more hours of work are necessary

to mine a ton of copper.

While mining explains another 10 per cent of the national productivity decline, only about one-fifth of this decline is controllable. The rest is a geological blow from Mother Nature.

Falling demand in utilities

While productivity grew in electrical and gas utilities from 1972 to 1978, there were declines in two years (1974 and 1977) and average productivity fell sharply from 6.3 per cent to 1.3 per cent a year.

Here again there is an easy explanation but no easy solution. Utilities employ most of their workers in maintaining their distribution networks. Relatively few are employed producing gas or electricity. In periods when average household consumption is going up very rapidly, productivity rises dramatically. Output is up, but more workers do not have to be employed since the extra output can be distributed through the existing distribution network. But when household consumption falls, productivity falls. Less output is being produced, but the same work force is necessary to maintain the distribution network.

Utility productivity is a simple direct function of the rate of growth of output. If output grows rapidly, as it did from 1948 to 1965, productivity grows rapidly. If output grows slowly, as it did from 1973 to 1978, productivity grows slowly. If output falls, as it did in 1974 and 1977, productivity falls.

Although utilities explain another 8 per cent of the national productivity decline, this part of the decline is in a class with oil depletion when it comes to remedies. If energy prices rise rapidly, energy consumption will fall - it is even a national policy to make it fall. But if consumption falls or slows down, productivity must fall or slow down with it.

Together, mining and utilities represent the direct 'energy' blow to productivity. The decline in oil productivity is one of the reasons that energy prices are up, and higher energy prices lead to lower utility productivity. When these direct effects are added to the indirect effects of having to devote investment funds to saving energy rather than raising labour productivity (discussed below), energy problems probably explain about 20 per cent of the productivity decline.

Services

Services are the mirror image of agriculture. Agriculture was a rapidly declining low-productivity industry. Services are a rapidly growing low-productivity industry. Whereas agriculture was enhancing productivity growth, services are dampening it.

Services have been braking productivity growth since the Second World War. But the brakes have been gradually tightening as service productivity falls in relation to the national average. In 1948 service productivity was 96 per cent of the national average. Moving a worker into services only lowered productivity four percentage points. But by 1978 service productivity had fallen to 62 per cent of the national average. Every worker that moved into services represented a 38 per cent decline in productivity.

From 1972 to 1978 services absorbed 35 per cent of all the hours of work added to the private economy. Of these 5.7 billion hours of work, 42 per cent went into health care, largely into nursing homes, and 27 per cent went into business services (lawyers, accountants, consultants).

Our economy also added thousands of workers in occupations such as security guards. Since 1972 an extra 150 000 private security guards have been added to the economy, but security guards are pure negative productivity. They guard existing output and so add to hours of work, but they do not produce any new output and so add nothing to output. The result: declining productivity.

If services had not grown from 1972 to 1978, about 5 per cent of the observed decline in national productivity would have disappeared. But the problem of nursing homes, lawyers, and security guards illustrates the difficulties of dealing with service productivity. Bathing and feeding old people may be a low-productivity occupation, but each of us wants to be bathed and fed when old. Lawyers may be a drag on productivity, but we are all using them in increasing numbers. Productivity statistics do not care whether you have or some thief has your new stereo, but you care.

Inflation, the baby boom, and capital investment

Particular problems in agriculture, construction, mining, utilities, and services explain about 57 per cent of the productivity decline between the

first and third periods. Most of the remaining 43 per cent of the decline can be traced to the interaction of two other factors - the macro-economic policies used to fight inflation and the baby boom.

The amount of equipment per worker - the capital/labour ratio - is one of the key ingredients in productivity growth. With more equipment, workers can produce more output per hour, but new capital is also a carrier of new technologies. To put new, more productive, technologies to work workers must be provided with the new equipment that embodies those new technologies. Without new physical capital it is impossible to translate new knowledge into new output.

In the United States the capital/labour ratio grew 2.8 per cent annually from 1948 to 1965, accelerated to 3.2 per cent annually from 1965 to 1972, and then plunged to 1.4 per cent annually from 1972 to 1978 (U.S. Department of Commerce 1979, 62). In 1978 the capital/labour ratio actually fell 1.3 per cent.

But the slowdown in the growth of the capital/labour ratio did not occur because Americans were investing less. From 1948 to 1965, Americans invested 9.5 per cent of the GNP in private plant and equipment, but in both of the next two periods they invested 10.3 per cent of the GNP. The capital stock was actually growing slightly faster in the 1973-8 period than in the 1948-65 period (3.4 versus 3.3 per cent), but the labour force was growing much faster as the baby boom entered the working ages.

The growth in hours worked gradually accelerated from 0.4 per cent annually in 1948-65 to 1.1 per cent in 1965-72, and to 2.1 per cent in 1972-8. With a fivefold increase in the rate of growth of the private labour force and only a slight increase in plant and equipment investment, simple algebra requires a sharp slowdown in the rate of growth of the capital/labour ratio.

The problem was nicely illustrated in 1978. Americans invested 10.4 per cent of their GNP in plant and equipment. The capital stock rose 3.4 per cent. But hours of work rose 4.8 per cent, and the capital/labour ratio fell 1.3 per cent. When the data for 1979 are available, they will undoubtedly exhibit an even larger reduction in the capital/labour ratio.

Pollution and energy problems may also be compounding the baby boom effect. To the extent that capital investment is used to control pollution or cut energy use, there is less investment available to be used

to raise productivity. No hard estimates exist to indicate how much of our plant and equipment investment has gone into energy savings since 1972, but about 5 per cent of it has gone into pollution controls (U.S. Department of Commerce 1980, 27).

If pollution and energy expenditures were excluded from capital investment the slowdown in the rate of growth of the capital/labour ratio would be even sharper. But even without considering the investment drained off to fight pollution and cut energy use, the observed slowdown in the growth of equipment per worker explains about 20 per cent of the productivity decline. If pollution, energy, and the role of capital in carrying new technologies are considered, capital plays an even more important role in the productivity decline than this 20 per cent indicates.

But to accelerate the growth of the capital/labour ratio would have required Americans to invest a much larger fraction of their GNP in plant and equipment. There is less equipment per worker not because Americans are investing less but because there are many more Americans in the labour force. But less consumption is the necessary converse of more investment. And less consumption inevitably means a sharp reduction in standards of living until the baby boom has been equipped with capital, until pollution has been brought under control, until energy use has been reduced to levels appropriate to the price of energy, and until America has caught up with the new technologies employed by Germany and Japan.

But it is important to understand that the slowdown in the growth of the capital/labour ratio was not irrational or a mistake. It was a perfectly rational response to the economic facts of life. Firms invest to raise the capital/labour ratio when it is profitable to do so. When the cost of capital falls compared to the price of labour, firms find it cheaper to raise production by investing in capital than by hiring more workers. The result is a rising capital/labour ratio. But when capital becomes more expensive compared to workers, firms find it cheaper to raise production by hiring more workers and the capital/labour ratio falls.

Unfortunately from the point of view of productivity, economic signals have been calling for a slowdown or reduction in the capital/labour ratio. Looking just at the purchase price of new capital equipment in relation to the compensation (wages plus fringe benefits) of labour, the price of capital was falling 2.7 per cent annually compared to the price of labour from 1948 to 1965.[1] But from 1972 to 1978 the relative price of capital was only falling at a rate of 0.7 per cent annually (Table 3).

TABLE 3

Growth in the price of labour vis-à-vis capital (annual percentage rates of change)

Years	Price of labour/ purchase price of capital	Price of labour/ purchase price plus energy costs	Price of labour/ purchase price plus energy costs plus interest costs
1948-1965	2.7	2.9	1.1
1965-1972	2.3	1.8	-4.5
1972-1978	0.7	-2.9	-4.2

The purchase price of new capital equipment is also only part of the total costs of capital. Energy is required to run capital equipment, and the price of energy becomes part of the total costs of acquiring and using capital. If energy costs are included, capital became cheaper relative to labour at the rate of 2.9 per cent per year from 1948 to 1965 (energy prices were falling).[2] But from 1972 to 1978 the situation had reversed itself. Energy prices were rising, and the costs of capital including energy rose in relation to that of labour at the rate of 2.9 per cent a year.

If financing charges - the interest that must be paid to borrow the money necessary to buy the capital equipment - are included along with energy and capital's purchase price, the turnaround is even more dramatic. While total capital costs fell 1.1 per cent a year compared to total labour costs in the first period, total capital costs rose 4.2 per cent a year compared to total labour costs in the third period.

With such a sharp shift in the movement of relative prices it is not surprising that there was an abrupt slowdown in the rate of growth of the

1 These figures are calculated using the National Income Accounts' implicit price deflator for non-residential plant and equipment investment and the National Income Accounts' estimate of compensation per full-time equivalent employee. The PPI index for industrial energy was used for energy prices, and the interest rate used was the Baa corporate bond rate.

2 Energy operating costs were estimated to be 20 per cent of capital purchase price. See Berndt (1980).

capital/labour ratio. Business firms were doing exactly what economic incentives were demanding. But regardless of the cause a more slowly growing capital/labour ratio inevitably leads to lower productivity growth.

While investment has not fallen, there is an easy explanation of why it did not rise faster than it did. America has attempted to stop inflation with slow growth and tight monetary and fiscal policies. Whatever their success in stopping inflation, these policies retard investment in a number of ways.

As has already been seen, tight monetary policies raise interest rates and directly increase the cost of capital. Corporate bond rates have gone from 3 1/2 per cent in the 1950s to almost 15 per cent now. When capital costs, including interest costs, rise, firms invest less. It is correct to point out that the rate of interest only kept pace with inflation, but it must be remembered that there was nothing causing a similar increase in prices on the labour side of the capital/labour ratio.

But deflation also means recessions, falling production, and idle capital capacity. Why should firms invest in more capital capacity when they already have vast amounts of idle capital capacity? They should not. And very few do. The result is less capital per worker in the next economic boom.

While rising interest rates increase the cost of capital during recessions, recessions are supposed to stop inflation by retarding wage increases. With high unemployment, union workers cannot demand high wage increases. With surplus labour available, non-union employers have no incentive to give wage increases. But to the extent that this anti-inflation policy succeeds, it lowers the relative price of labour. With capital rising in price and labour falling in price, firms have every incentive to invest less. While the baby boom would have kept wages from rising compared to capital costs as fast in the 1970s as they did in the 1950s, anti-inflationary policies exacerbated the problem.

In addition, recessions and higher unemployment have a direct impact on productivity. In our mythology recessions cause firms to redouble their efforts to improve productivity. Since they cannot increase sales they focus on cutting costs. Though some of this effect undoubtedly exists, the basic impact of recessions is very different.

When output falls firms cannot or do not fire overhead labour (managers, sales or design staffs, researchers) as fast as output falls. Skilled

workers are also kept on the payroll long after they are needed because firms worry that they will not be able to hire them back in the next boom. Add to this the costs of massive firings (morale problems, severence costs, psychological distress for both the firer and the fired) and it is easy to understand why labour is not fired as fast as output falls.

Productivity grows most rapidly when output is growing rapidly. All of the preceding factors are reversed. Workers who have been kept on the payroll are put back to work. Production goes up without hiring more labour. But labour shortages also induce new efforts to find more productive, capital-intensive methods of production. Wages are rising and labour is hard to find. Part of the reason that Japanese and German productivity has grown more rapidly since the Second World War is that firms have had to operate in a world of perpetual labour shortages.

Adequate capital investment cannot be separated from macro-economic policies. Regardless of the tax incentives provided, investment only takes place in an atmosphere of economic growth. If the nation deliberately interrupts economic growth to stop inflation, it will inevitably stop investment.

DECLINING RESEARCH AND DEVELOPMENT EXPENDITURES

Research and development expenditures have fallen from 3 per cent of GNP at the beginning of the 1970s to 2 per cent of GNP at the begining of the 1980s, but this decline explains very little of the observed decline in productivity. Productivity growth decelerated after 1965, well before any cutback in research expenditures. There are also very long lags between research and development expenditures and measured productivity. Products must be invented, production processes must be developed, factories must be built, and the industry must grow to a size that can have a measurable effect on aggregate productivity.

Cutbacks in research and development will undoubtedly hurt productivity, but that impact is yet to come. And this impending impact is one of the reasons to be pessimistic about productivity in the 1980s. Most of the factors that caused productivity to fall in the 1970s will be with us through the 1980s, and they will be augmented by the effects of lower research and development expenditures.

An inexperienced labour force

Because of the baby boom and rising female labour force participation rates, the labour force was flooded with inexperienced workers in the 1970s. Their inexperience was counterbalanced, however, by the fact that these new workers, especially the baby boom workers, were much better educated than older workers. While the inexperience of the labour force may have played a small role in slowing productivity, it was not one of the basic causes (Perloff and Wachter 1980).

If inexperienced workers were at the heart of the problem, the biggest productivity declines should have occurred in the industries that hired the most women and young people. The industries with sharp reductions in productivity growth, however, were not those ones (see Table 1).

The baby boom and rising female labour force participation have had a large influence on productivity but not through inexperience. A rapidly growing labour force was one of the factors leading to a falling relative price for labour and a much slower growth of the capital/labour ratio.

Hindering rules and regulations

Government rules and regulations are also only a minor and indirect part of the problem (Crandall 1980). Many of the effects have already been noted. Government rules and regulations probably explain about 20 per cent of the decline in mining productivity. Five per cent of the nation's capital investment has been syphoned off to stop pollution. Fights over nuclear power may be part of the problem in construction. Government cutbacks in research support will affect productivity in the 1980s. Capital costs may be up because it now takes longer to get permission to build new factories.

But as has been shown, the decline in productivity is basically explainable without casting all the blame on government. In addition, manufacturing, the industry most subject to regulation, is a relatively bright spot on the productivity front. While overall productivity was declining in 1979, manufacturing productivity was rising. If government is to be blamed, its macro-economic policies are much more important than its rules and regulations.

The problem with government is not so much what it has done to stop productivity growth as what it has not done to stimulate productivity. With many of the factors leading to lower productivity irreversible, structural improvements must occur if productivity is to regain its old level of performance. This means changes not only in some rules and regulations but in many other factors as well.

THE NATURE OF THE PROBLEM

Reviewing the factors that have just been enumerated, it is clear that declining productivity cannot be solved by simply 'reversing' the causes. Most of the decline due to agriculture, mining, utilities, and services is irreversible. The decline due to construction may or may not be reversible depending on how the mystery is resolved. Research and development expenditures could and should be brought back to the old levels, but this will be of more help in the late 1980s than in the early years of the decade. Nothing can be done about the age-sex mix of the labour force. Minor modifications may be made, but pollution and safety controls are here to stay.

And perhaps most important of all, relative prices are calling for a sharp slowdown in the growth of the capital/labour ratio. Lower productivity growth is precisely what should happen in neoclassical economics when the economy needs to absorb a labour force bulge caused by demographics.

Why then should the government intervene? There are a number of possible answers. Western political and military alliances may be untenable if the United States has a much lower per capita income than that of Western Europe and Japan. Americans won't carry the defence burden for those wealthier than they. The newly rich cannot carry the defence burden because they are small countries, because of their geographic location and size, because of their history, and because they are not politically unified. When Britain declined, the United States was in the wings willing and able to pick up the burden. Who can take up this role now?

Perhaps democracies cannot survive a decade of little or no growth. Democracy works when there are benefits to be handed out or when there is a crisis requiring egalitarian sacrifices, but it does not work when

government has to deliver falling real standards of living to a majority of its voters while making others rich. This is especially true when it cannot blame the situation on someone else. The strong then attempt to take from the weak, and everyone chooses sides to fight the zero-sum game.

One can also argue that the whole society is responsible for the baby boom. As a result society should not force one particular generation to suffer an economic lifestyle that is much worse than for those who came earlier and those who will come later.

I think these arguments are compelling. They justify a market intervention, but it should be clearly remembered that efforts to accelerate productivity growth are going against market forces, not with them.

CURING THE PROBLEM

Cutting consumption to stimulate investment

Since many of the causes of the productivity problem are not reversible, the attention of the public has quite naturally focused on investment. If investment could be made to grow more rapidly, more investment would offset other negative factors and lead to a higher rate of growth of productivity. Every extra 1 per cent of the GNP devoted to plant and equipment investment raises the growth of productivity by approximately 0.2 percentage points. And to the extent that the new investment allows the country to use new technologies, the gains may be even greater.

Technically, it is easy to stimulate investment. If the tax system were biased in favour of capital investment - by eliminating the corporate income tax, by accelerating depreciation, or by a host of other possible investment tax cuts - and the economy were operated on some reasonably consistent long-run growth path, there is little doubt that investment would rise.

But to provide the funds necessary to bias the tax system in favour of capital is to bias it against consumption. To pay for massive investment tax cuts, consumption taxes would have to be raised. Here again there is no technical problem in bringing the desired changes about. A value-added tax (essentially a national sales tax) could be adopted to discourage consumption and raise the revenue necessary to pay for investment tax cuts.

Alternatively, the revenue could be found by cutting defence or social programs. Neither, however, is likely. Pressures now exist to raise defence spending, and social programs are a euphemism for social security when it comes to federal budgets since social security accounts for almost 75 per cent of social spending. Having just raised social security benefits 14 per cent, it is hardly likely that Congress will now vote to cut them.

The problem of finding the revenue necessary to cut taxes on capital investment is obviously political. Are Americans willing to force themselves to save and invest more than they are now investing? In the long run they will be better off if they do, but in the short run they will have to be willing to sacrifice.

If investment is to be stimulated, a different anti-inflation strategy is also necessary. No matter how large the tax cuts, businesses are not going to invest in new capital equipment when output is falling and much of their existing capital equipment is idle. Recessions cannot be used to fight inflation if investment is to rise. Here the problems are partly technical and partly political. Technically there are no easy ways to stop inflation (tax-based anti-inflation programs are one possible answer), and politically we may not be willing to employ what means are available.

This is not the place to solve the inflation problem. But the current anti-inflation strategy must be replaced if America is to accelerate its productivity performance in the 1980s.

A national finance committee

But investment problems go beyond simply raising the fraction of GNP devoted to plant and equipment investment. Other countries not only invest more; they also have a more systematic method of moving funds into new growth areas. The Japanese operate through MITI, the Ministry of Trade and Industry, and the Bank of Japan. The French and Germans have a much more important investment banking sector that is often backed by government. In each case the aim is to direct capital into new growth areas - sunrise industries.

To compete in world markets the United States is going to have to develop some equivalent institutions. What it needs is the national equivalent of the corporate finance committee. As in any corporation this

committee would seek, not to plan the economy, but to direct some of the economy's investment funds into new growth areas.

Consider the semiconductor industry, an industry pioneered in America. This industry is in process of shifting to much larger and more capital-intensive techniques of production. In an economy such as the United States, where industries operate with low debt/equity ratios and depend upon retained earnings to fuel investment, the pace of the shift to the new production processes is limited by current profits.

But the Japanese are entering this industry with massive amounts of debt capital ultimately lent by the Bank of Japan. Their aim is to jump directly into large-scale, capital-intensive techniques of production; proceed rapidly down the learning curve; sell at prices lower than those of the rest of the world; and capture most, if not all, of the market. If American industry limits its investments to those that can be financed by retained earnings, they will simply be driven out of the semiconductor industry.

The problem cannot be solved by pretending that it does not exist. U.S. industry simply will not be able to compete in the modern world of international trade without changes in the way it has traditionally operated. Maybe America would be better off if no government engaged in investment banking. But other governments do. And American firms have to compete with foreign firms that are backed by investment facilities that new small American firms do not have. Unless a country is able to take advantage of product innovations and develop new large-scale sunrise manufacturing industries to replace its old large-scale sunset industries, it does very little good to develop a product first.

Many observers have criticized the idea of a national corporate investment committee on the grounds that it would be used to prop up old sunset industries that are better left to die rather than to help new sunrise industries. No doubt there is a real danger that it would be used to help steel and autos rather than semiconductors. Yet if this criticism is taken seriously, the conclusion is incredible pessimism about the ability of Americans to compete and adjust to new economic facts of life. The critic is saying that the country cannot compete in international markets as they are now organized and that America is so incompetent that it cannot reorganize itself to compete. Maybe this is a correct diagnosis, but it would be a shame to accept such a conclusion without trying to overcome the real

difficulties in the way of an efficient industry policy.

The problem is also not as difficult as it is made out to be. Obviously no one can pick the industries that will be America's sunrise industries fifteen or twenty-five years from now. But fortunately that is not the problem. The problem is to aid today's sunrise industries so that they remain sunrise industries for as long as possible. One does not need perfect foresight to know that semiconductors are a sunrise industry. The problem is to keep it that way. And if one really thinks that Americans are so incompetent that they cannot pick sunrise industries, then one can simply use the Japanese list.

The problem is also not a government problem. The trick is to use the knowledge of the private economy, labour and management, plus the knowledge of government to determine where America is going and how it could get there more efficiently. I suspect that if you asked those three groups to list the country's growth industries you would have remarkably similar lists.

An industrial policy also is not one of likes and dislikes. You may prefer a free market economy when government is not involved in 'planning' the direction of the economy. You may wish that the rest of the world were willing to play that economic game. But it is not. As the semiconductor industry indicates, we may have no winners if we are not willing to change our methods of playing the economic game. The market will kill our losers, the Japanese and Germans will kill our winners, and we will gradually settle into a second-rate economy. We may fail in spite of our attempts to build an industrial policy, but we will certainly fail without an industrial policy.

Within that category of options called industrial policies there are two broad choices. Policies can be built to help losers or winners. The correct solution is to have a social safety net for helping the individuals who are hurt when losers fail and an industrial policy for ensuring that America has sunrise industries into which individuals can move when their old jobs disappear.

An industrial policy designed to prop up dying industries is a route to disaster. We need only look at the countries that have tried - Britain and Italy. No one can make it work. There are usually good reasons why an industry is a loser. Its market is shrinking, or it has lost its comparative advantage to some other region of the world. But the British at

least adopted a policy of propping up losers before anyone had failed in the attempt. We do not have that excuse. We have only to look around us to see that it does not work.

To adopt such a policy now is the height of stupidity. Yet that is what President Carter recently proposed. He proposed a double investment tax credit for firms in depressed areas. This has been tried by the British and found wanting. Accelerated depreciation was touted as an aid to losers and winners, but in fact it is primarily an aid to old, established firms. It does not do you much good if you are a new firm just getting into business or a small but rapidly growing firm.

Additional problems of a bailout strategy are clearly seen in the case of Chrysler. Automobile manufacturing is not a sunset industry. The industry is simply facing a difficult shift from large to small cars. But in such a shift, marginal, poorly managed firms will be the first to fall. Chrysler is such a firm. By propping it up the government prevents other American firms, such as Ford, from buying its viable small car facilities. This gives America one very sick and one slightly sick car company rather than one healthy car company. And it does nothing to help those people who work in the old unviable Chrysler plants. Those plants will be shut down whether Chrysler does or does not survive as a company.

What is more, we will not have a really effective bailout strategy. One can argue that zero is the right Chrysler loan guarantee or that $5 billion is the right loan guarantee, but $1 1/2 billion is clearly wrong. It is enough to prolong the agony, but not enough to cure the problem. Chrysler will have to come back for more. It may get more, but getting $5 billion in small lumps with great uncertainty is not the same as being able to plan on $5 billion in additional resources.

If we are talking about real losers, such as textiles, the difference in the strategies is clear. Productivity and real standards of living rise by getting into new high-productivity industries and getting out of old low-productivity industries. If the latter are protected, that stops labour and capital from leaving them and flowing into the new industries. In addition, the bailout funds must come from somewhere, and they usually come out of funds that would otherwise be available for new industries. This leads to a slower growth for the sunrise industries and a lower real standard of living.

Nor does the shift result in permanently depressed regions of the country. The two industrial states with the lowest unemployment rates in the fall of 1980 were Texas and Massachusetts. New England is a prosperous region because it got out of its old dying industries and into new growth industries. If Washington had protected New England's old dying industries, the area would still be depressed. It is correct to point out that New England went through forty years of economic pain before it made that transition, but the correct answer to this is a national policy for aiding individuals and speeding up the transition. To prop up dying industries will only prolong the pain. Whatever government does they will die in the end.

When a firm moves from Ohio to Texas the nation does not suffer an economic disaster. Texas, which is after all part of the same country, grows, the new workers get new, higher-paid jobs, and those remaining in Ohio do not in the long run lose. This is clearly seen if you look at per capita income growth from 1977 to 1979. Among the ten states with the worst performance, the bottom five (Alaska, Maryland, Hawaii, Utah, and Idaho) are in what is usually called the 'sunbelt.' Mississippi, Alabama, and Kentucky also turned in below-average performances. Similarly, the top ten performers contain four frostbelt states (North and South Dakota, Iowa, and Indiana). And only one state in the southeast (Florida) is even in the top ten. The economic recovery of Massachusetts is the rule, not the exception.

Real factors, mostly energy costs, are dictating a shift in the location of manufacturing activity. This is a shift that we stop at our peril. If we stop it we simply won't have a prosperous country. Ohio will be slightly larger and Texas slightly smaller in terms of population, but both regions will have lower real standards of living.

Given the demonstrated failure of an industrial policy designed to aid losers, the only question is whether an efficient industrial policy can be designed to aid winners. This policy would have to be modified as experience teaches us what will and will not work in the United States, but it should start with a small group of people who have the right to extend government loan guarantees to firms in industries such as semiconductors.

This national 'corporate investment committee' should be made up of recently retired businessmen, labour leaders, and government officials from the congressional and administrative branches of government. Recently

retired officials should still be young enough to be vigorous yet have the necessary information upon which to act while at the same time not having direct self-interest.

Their tasks should not be to tell sunrise industries what to do, but to ask sunrise industries what they need in order to be more successful than they are. The answer may be capital, and in this case the committee would have the power to offer debt capital at market rates of interest. This protects the taxpayer - since he would own the corporation's assets if the firm went bankrupt - and does not let firms acquire capital at less than the market rates of interest. These firms are after all supposed to be some of the most profitable ones in the economy but firms that cannot grow as fast as their foreign competitors because of their inability to acquire capital at market rates of interest.

The firms may say that they need something else - changes in anti-trust regulations or environmental regulations - to be successful. In this case the committee's job would be to evaluate the costs and benefits of that request and if convinced that the costs exceed the benefits to recommend the necessary changes to the larger society and political process. To some extent they would be a lobbying group for the sunrise industries of the economy. In this they would be a counterweight to the large lobbies that always support the sunset industries. By definition, sunrise industries do not have large vested interests behind them.

Perhaps it will prove impossible to make a 'winners' industrial policy work in the United States. If so, the United States' day in the economic sun will simply have come to an end. But not to try will guarantee that the economic sun has set. The sun is now setting - the economy is not performing as well as those of our neighbours, allies, and competitors. It is our task to reverse this process.

CONCLUSIONS

If real standards of living are to resume their upward course, productivity growth must be restored. If we are to compete in international markets with the Japanese and Germans, productivity must be, not just restored to its old levels, but raised to levels never achieved before.

This is not going to be easy. If an autopsy on American productivity were being written, it would list the cause of death as 'death by a thou-

sand cuts.' This is no single thing to which the decline can be attributed, no magic button that can be pushed to raise the economy from the dead. The cure will require a thousand bandaids for each of the thousand cuts. And each of those bandaids is painful and going to be resisted by some vested interest in the United States. Everyone wants a cure to the productivity problem, but everyone wants the cure to be imposed on someone else. If we cannot find the political will to impose the costs upon ourselves in some fair manner, we simply will not solve the problems facing us.

What is clear is that cure is not to be found by returning to the 'good old days.' Those days were not good enough to compete in today's world, and some very real factors (the end of cheap energy, the completion of the shift from agriculture to industry) mean that it is impossible to return to them in any case.

The United States will have to develop new industries and new techniques of managing the economy if it is to survive in the future. There is nothing in the stars that gives Americans a permanent right to the number one economy. It was not always that way (American per capita GNP did not exceed that of Great Britain until 1900), it is not that way now (among industrialized countries the United States has sunk to fifth in per capita GNP), and it may never be that way again.

REFERENCES

Berndt, E.R. (1980) 'Energy price increases and the productivity slowdown in United States manufacturing.' Paper presented to the Federal Reserve Bank of Boston Conference on Productivity

Council of Economic Advisers (1980) Economic Report of the President 1980 (Washington, DC: Government Printing Office)

Crandall, Robert W. (1980) 'Regulation and productivity growth.' Paper presented to the Federal Reserve Bank of Boston Conference on Productivity

Perloff, Jeffrey M. and Michael L. Wachter (1980) 'The productivity slowdown: a labour problem?' Paper presented to the Federal Reserve Bank of Boston Conference on Productivity

Stokes, H. Kemble jr (1979) 'An examination of the productivity decline in the construction industry.' Mimeo. Office of the Chief Economist, U.S. Department of Commerce

U.S. Department of Commerce (1979) 'Fixed nonresidential business capital in the United States.' Survey of Current Business Part II, August
- (1980) 'Pollution abatement and control expenditures 1972-78.' Survey of Current Business, February
- (various years) 'National income and product accounts of the United States.' Survey of Current Business, July

Paul Davenport

Lester Thurow's overview of the slowdown in productivity in the United States is an excellent introduction to this problem. My comment will highlight his main points, compare the Canadian experience to that in the United States in several areas, and offer one or two bits of carping criticism. Especially important is his stress on the endogenous nature of productivity growth: public policy that restricts demand in order to fight inflation will inevitably also restrict investment and will lower potential real output and productivity in coming years.

Output per manhour in the U.S. private business economy grew at 3.2 per cent a year from 1948 to 1965, 2.3 per cent from 1965 to 1972, and only 1.1 per cent from 1972 to 1978; 1979 is unique in American history in combining rising output and falling productivity (-2.1 per cent). Thurow shows first that the slowdown is broadly based. He divides the economy into twelve industries; the growth rate of productivity declined in ten of them from the first period to the second (1948-65 to 1965-72), and again in ten industries from the second period to the third (1965-72 to 1972-8). From the second to third periods, the growth rate fell by 6.6 per cent in mining (the worst-hit industry), 4.0 per cent in wholesale trade, 2.4 per cent in agriculture, and 2.1 per cent in utilities (electricity, gas, and sanitary services). In mining and construction productivity was actually lower in 1978 than in 1965.

In Canada productivity growth rates were generally higher but showed the same declining trend. Cyclically adjusted output per person employed in the commercial economy grew at 4.27 per cent[1] from 1947 to

1 Unless otherwise indicated, data and analysis of the Canadian economy

1956, 3.13 per cent from 1956 to 1971, and 2.09 per cent from 1971 to 1978. Growth rates of output per manhour would be about 0.7 per cent higher in each case. Canada differs from the United States in that there is no evidence of a decline in the aggregate growth rate between 1965 and 1971. As in the United States, 1979 was unique in combining rising output and falling productivity. Industries with the greatest negative change in the growth of productivity between the second and third periods were mining (-5.9 per cent), utilities (-2.7 per cent), construction (-1.5 per cent), and transportation, storage, and communications (-1.7 per cent); the first three are also on the U.S. list. The slowdown was again broadly based: the growth rate of productivity fell between the second and third periods in five of nine industrial sectors in Canada and was unchanged in two other sectors.

Thurow attempts specific explanations for the slowdown in several industries, and in some cases his analysis holds quite well for Canada. Mining, the industry with the biggest productivity problem in both countries, reflects mainly the diminishing returns of exploiting exhaustible resources. Soaring prices have set labour and capital surging into the energy industries, while production stagnates. It has been estimated that the productivity problems of industries related to oil and gas (including distribution facilities) can account for about one-quarter of the slowdown in productivity in Canada after 1973 (Sims and Stanton 1980, 29). Thurow attributes the slowdown in productivity among U.S. utilities to a reduction in demand induced by the slowdown in aggregate growth and the rapid rise of energy prices. In Canada the rate of growth of output of utilities has fallen by 1.15 per cent[2] while the growth rate of employment has risen by 1.41 per cent a year since 1971. It may be that high utility prices have led to the application of more labour to the maintenance of efficient distribution systems. Thurow describes the fall in productivity in construction since 1965 as a 'mystery,' which might involve the well known problems of price deflation in that industry or shifts in the structure of the industry. Structural shifts and general recession seem particularly important in Canada, as the industry tries to find substitutes for the

are from Davenport (1979); a summary of much of that paper may be found in Sims and Stanton (1980, 30-9, 54-64).

2 Despite the slowdown between 1956-71 and 1971-8, utilities were the fastest growing major industrial sector in Canada in both periods.

slumping housing market. Housing starts fell by 16 per cent between 1971 and 1979, and there is no relief in sight: a background paper for the recent federal budget predicts that real residential investment will fall by 5 per cent from 1979 to 1985.[3]

Thurow also attributes part of the decline in productivity to shifts in the 'industrial mix,' including the end of the gradual decline of agriculture, and the rise of the service sector, both of which are low productivity sectors. In this context, he assigns 14 per cent of the productivity slowdown between his first and third periods to agriculture and 5 per cent of the slowdown after 1972 to services. His recent book (Thurow 1980, 86) asserts that 'about 40 percent of the [productivity] decline can be traced to a shift in the mix of goods and services being demanded and produced.' This high number is reminiscent of an earlier study by Nordhaus, who found that the productivity slowdown up to 1971 'can be traced almost exclusively to ... shifts in employment shares among industries with different levels of productivity' (Nordhaus 1972, 520).

The 'shift-share' analysis behind these numbers can be computed using either output or employment shares as weights. Nordhaus uses employment shares, and so, apparently, does Thurow. My own view is that employment shares should not be used because they are a function not simply of real demand (or output shares) but also of differential growth rates in the productivity among industries. The employment share of an industry equals its output share divided by its productivity relative to aggregate productivity. If output shares are fixed, industries with slow-growing productivity (like services) have rising employment shares. It then makes no sense to compute hypothetical aggregate productivity levels by weighting actual industry productivity by fixed employment shares, because those fixed shares will generate an output distribution inconsistent with final demands as expressed by actual output shares (e.g., fixed employment shares imply that the output share of agriculture must rise over time since agriculture has above average productivity growth). Employment shares are endogenous functions of output shares and differential productivity growth: to attempt to explain productivity

3 Department of Finance (1980, 15); this same document (p. 10) has an equally gloomy prediction for aggregate productivity: the average annual growth rate of GNE per person employed for 1979-85 is only 0.2 per cent making the level in 1985 roughly equal to that in 1977.

with employment shares is to put the cart before the horse.

It makes more sense to treat output shares as exogenous functions of taste, and to weight industry labour requirements per unit of output (the inverse of productivity) with fixed output shares. In general, the hypothetical productivity numbers so generated will not differ much from the actual figures because output shares vary much less than employment shares, and output shares do not have a general negative relation with the productivity growth of industries, as employment shares do. For example, weighting the changing labour requirements for the nine major commercial industries[4] in Canada by output weights from a given base year has little effect on productivity since 1965, and for two reasons: first, output shares have not changed much since 1965 (most of the shift out of agriculture had occurred by then); second, some high-productivity industries have experienced rapidly expanding output since 1965 (utilities; transportation; and finance, insurance, and real estate). Thus if we use the 1971 output shares as weights, the implied aggregate productivity is only 1 per cent higher than the actual in 1978 and 1 per cent lower in 1965. The annual growth of productivity is raised by only about 0.15 per cent in each period (1965-71 and 1971-8). Hence changes in the structure of output in Canada can explain none of the slowdown in productivity since 1971.

This is more than statistical nitpicking, for focusing on the supposed productivity effects of employment shifts diverts attention from the crux of the issue: the prior growth of investment and productivity in the various industries that makes the employment shifts possible. From 1948 to 1970 employment in U.S. agriculture was reduced by some 5 million workers, and, says Thurow in his paper, 'every worker released from agriculture and retained by industry represented a sixty percentage point jump in productivity.' Yet simply buying bus tickets to large cities for five million farm workers in 1948 would not have led to a jump in productivity, but rather to widespread hunger and urban unemployment. Those workers left the farms because the costly application of chemistry and engineering to agriculture allowed a dwindling number of farmers to feed a growing nation;

4 The nine Canadian commercial industries are roughly the same as the industries in Thurow's Table 1, except that in the Canadian data manufacturing and trade are separate industries, and transportation, storage, and communication are one industry.

the released workers were absorbed elsewhere because investment in factories and offices allowed them to find work within a context of steadily growing industrial productivity.

Thurow also considers the relation between capital accumulation and productivity. The role of investment in productivity growth can be analysed by focusing on capital/labour ratios or investment productivity. Thurow notes that the capital/labour ratio grew at 3.2 per cent from 1965 to 1972, but at only 1.4 per cent from 1972 to 1978 because of an acceleration in employment as the baby boom generation entered the labour force. Precisely the same phenomenon occurred in Canada: a fairly steady growth of capital stock was swamped by a surge of employment in the seventies, and the growth rate of capital per worker fell. I have elsewhere estimated that about one-half of the slowdown in productivity after 1971 can be attributed to the slowdown in capital per worker (Davenport 1979).

Another way to look at investment and productivity is with a modified Harrod equation, in which the rate of growth of gross output ($\Delta Q/Q$) is the product of the propensity to invest (I/Q) and the incremental productivity of gross investment ($\Delta Q/I$). Table 1 shows that on both sides of the border the propensity to investment has been maintained but the productivity of investment has fallen, dragging down the growth of output and productivity.[5] In both countries the incremental productivity of investment fell after 1972 by over one-quarter of its value in the previous period, without any corresponding drop in the growth of labour input. Line 6 of the table shows that in Canada before 1973 a dollar (in 1971 prices) of gross investment increased output capacity on average by about 38¢; the figure fell to 28¢ for 1973-8 and is predicted to fall to about 17¢ for 1978-85. Like the productivity slowdown, the decline in investment productivity occurred in most major industries. The decline in aggregate investment productivity, however, was exacerbated by the need to divert a growing share of gross investment into industries such as mining and utilities, where investment productivity has traditionally been low.

Thurow considers several factors that may have reduced the size and

5 As the note to Table 1 explains, the U.S. data are for the private business sector while those for Canada are for the total economy. Given this difference in coverage, the reader is cautioned against any direct comparisons between the two countries of the levels of the variables in Table 1.

TABLE 1
Investment and productivity in the United States and Canada 1948-85

United States		1948-65	1965-73	1973-8	
1	ΔQ/Q (%)	3.71	3.77	2.62	
2	I/Q (%)	12.3	13.5	12.8	
3	ΔQ/I	0.30	0.28	0.20	
4	ΔH/H (%)	0.38	1.44	1.42	
5	ΔP/P (%)	3.33	2.33	1.20	
Canada		**1948-65**	**1965-72**	**1972-8**	**1978-85**
6	ΔQ/Q (%)	5.06	5.26	3.90	2.48
7	I/Q (%)	13.4	13.8	14.0	15.0
8	ΔQ/I	0.38	0.38	0.28	0.17
9	ΔL/L (%)	2.03	2.65	3.01	2.45
10	ΔP/P (%)	3.03	2.61	0.89	0.03

NOTE: For the United States Q is gross domestic product in the private business sector, I is gross private domestic investment, H is hours paid, and P is productivity, Q/H. For Canada, Q is real GNP, I is business non-residential gross fixed capital formation, L is total employment, and P is Q/L. For both countries the growth rates (i.e. ΔQ/Q) and the ratios (I/Q and ΔQ/I) are average annual values for the periods shown. Note that line 3 is the ratio of line 1 to line 2, and line 8 is the ratio of line 6 to line 7.
SOURCE: U.S. data are from Norsworthy, Harper, and Kunze (1979, 390); Canadian data for 1948 to 1978 are from the Department of Finance (1980a, 162, 193); the 1985 data are projections from the Department of Finance (1980b, 10, 15).

productivity of new investment. About 5 per cent of U.S. investment in plant and equipment now goes to pollution control, a 'good' that is not included in conventional output and productivity figures. Government regulations in general raise business costs while producing benefits (e.g., health and safety) not included on the GNP. Regulation may thus increase welfare while it reduces measured productivity; 'over-regulation' would reduce both welfare and productivity. Productivity could be lowered by the inexperience of the baby boom entrants to the labour force, but Thurow rightly points out that these young people were better educated than older workers, so the impact on average labour quality is uncertain. Denison (1979, 32) finds that the rate of growth of actual labour input per hour worked (a measure of average quality) fell sharply in the late sixties

but rose in the seventies, as the positive education effects began to dominate the negative age-sex effects in the changing composition of the work force. If his numbers are even approximately correct, a decline in the quality of labour cannot be used to explain the U.S. slowdown in productivity after 1972. Finally, Thurow argues that the decline in research and development expenditures in relation to GNP after 1970 came too late to explain the slowdown in productivity in the seventies, but that the decline in R and D bodes ill for the growth of productivity in the next decade.

Thurow's policy suggestions focus on changing the size and distribution of gross investment. If much of the decline in investment productivity is truly exogenous (or irreversible), stimulating output and productivity requires raising the propensity to invest (I/Q). He recommends the creation in the United States of a National Finance Committee, a government agency that would channel funds into new growth industries to remove any financial barriers to their expansion. At the same time the government would stop all forms of subsidy and protection to declining industries and simply let them die. The serious regional difficulties that such a hard-nosed approach would encounter in Canada are obvious. Our weak, protected industries are concentrated east of the Ottawa River, where unemployment rates are already high, while plants in the growth industries are at present located mainly in Ontario and the west. A policy of abandoning eastern industry while subsidizing western plants is simply not politically feasible in Canada. A more acceptable policy would be one of aid to the east to help it establish growth industries as its uncompetitive plants were phased out.

Thurow stresses the influence of ordinary monetary and fiscal policy on the growth of investment and productivity. Here he makes perhaps the most important point in his paper: he argues that U.S. productivity problems have been compounded by the negative impact on investment of tight monetary policies, which result in high interest rates, stagnation of output, and idle capacity. This argument disputes the common aggregate supply-demand construction in which the 'long-run' supply curve is vertical and independent of shifts in aggregate demand (Blinder 1979, Chapter 2; Gordon 1978, Chapter 7). The fact is that there is no such 'long run' because potential supply is a function of variations in past demand. Restrictions on demand this year reduce fixed investment next year, which

reduces potential output and productivity the year after. Pretending that in the long run monetary and fiscal policy affects only prices, not output, leads to bad policy. This interaction between aggregate demand and supply and its important implications for stabilization policy was an important theme in many of the papers presented to this conference including those by Lorie Tarshis and Dick Lipsey.

The problem is illustrated admirably in the recent budget speech, in which the finance minister proclaims that 'the Bank of Canada will have my continuing support in holding down the rate of monetary expansion. This is now widely agreed to be a precondition of success in the containment of inflation' (MacEachen 1980, 4). But what of the Bank's role in stimulating investment and growth? The minister simply ignores the other side of the monetary restraint coin, which Thurow's paper describes as follows: 'But deflation also means recessions, falling production, and idle capital capacity. Why should firms invest in more capital capacity when they already have vast amounts of idle capital capacity? They shouldn't and very few do. The result is less capital per worker in the next economic boom.' That passage, and indeed Thurow's whole paper, should be required reading for those making monetary policy in Canada.

BIBLIOGRAPHY

Blinder, Allan (1979) Economic Policy and the Great Stagflation (New York: Academic Press)

Davenport, Paul (1979) 'Capital and productivity in Canada.' Mimeo prepared for the Department of Finance

Denison, E.F. (1979) Accounting for Slower Economic Growth: The United States in the 1970's (Washington: Brookings Institution)

Department of Finance (1980a) Economic Review (Ottawa: Canadian Government Publishing Centre)

- (1980b) The Medium Term Prospects for the Canadian Economy, 1980-1985 (Ottawa: Canadian Government Publishing Centre)

Gordon, R.J. (1978) Macroeconomics (Boston: Little, Brown)

MacEachen, Allan J. (28 October 1980) The Budget (Ottawa: Department of Finance)

Nordhaus, William D. (1972) 'The recent productivity slowdown.' Brookings Papers on Economic Activity 3, 493-536

Norsworthy, J.R., M.J. Harper, and K. Kunze (1979) 'The slowdown in productivity growth: analysis of some contributing factors.' Brookings Papers on Economic Activity 2, 387-421

Sims, Harvey and Jim Stanton (1980) Recent Changes in Patterns of Productivity Growth in Canada (Ottawa: Department of Finance)

Thurow, Lester C. (1980) The Zero-Sum Society (New York: Basic Books)

Discussion

QUESTION: Your discussion of the decline in U.S. productivity assumed a closed system, but of course the United States engages in foreign trade. What we had during the period of rising productivity was the ability to import raw materials at declining prices, and therefore we had some substitution of material for labour, which raised labour productivity, and we also had exports of high-technology manufactured products. During this last period the reverse is taking place. I guess part of your fears of the Japanese growth is not merely that Japan, a closed system, is growing more rapidly than the United States, a closed system, but that Japan is displacing U.S. firms in high-technology products and may force U.S. industry to go back into the textile industry out of the automobile industry. One can take what you are saying about government loans as being government intervention; one might go further in the direction of government intervention and I am wondering what your thoughts on that are.

LESTER THUROW: I think it is well to point out that the whole system is not a closed system and that a lot of these sources of productivity decline are permanent. If you look at the 14 per cent - the part that comes from agriculture in the structural shift - that's for ever: agriculture will never again be a big industry; we will never again be able to take 9.1 billion manhours of work out of it because there are only 8 billion there. The same thing applies to the geological depletion in mining: we know that it's going to take a lot more hours of work to get a barrel of oil in the United States from now on. We may find lots of oil, but it's going to be expensive oil in the sense of requiring a lot of work to get it, and that's

going to be a permanent decline in productivity. It is quite right that a lot of these things are permanent and irreversible, but then the question is, can you find offsetting positive things? That's the trick, and one of the tricks is disinvestment - how do you get out of dying industries? I am intrigued by the fact that last year the Japanese in a co-ordinated way closed 10 per cent of their steel capacity, the most obsolete 10 per cent. What did the United States do? We kept the most obsolete 10 per cent open. Now you can't do that if you want a high-productivity society. The Japanese actually closed one mill that was newer than the newest mill in Great Britain.

There are two ways to get productivity: one is to push out the forward part of the distribution of activities; the other is to lop off the tail. Now lopping off the tail is important because you get both capital and manpower that you can then move into the leading edge of the economy, so I think that speeding up economic change is one of the things we are going to have to do to offset agriculture, to offset mining, to offset some of these other negative things. I think you are quite right about the open economy; we could get by with low productivity if the rest of the world had low productivity. The one-eyed man really is king in the land of the blind, and when the British were growing at 1 per cent a year from the late 1800s till the Civil War, they were king because nobody else was growing at all. But if you are growing at 1 per cent and the rest of the world is growing at 8, then you are no longer king, even though you have not declined, and I think that is the problem we face. One, we have declined, but with the rest of the world doing better that really forces us to do better.

We used to - in the United States - be very comforted with the catch-up hypothesis; the argument is that it's easier to catch up than to invent new things yourself, and when Germany and Japan caught up they would automatically slow down when it came to productivity growth, but the problem is they haven't. Because we have slowed down, everybody slowed down a little, but we have slowed down even more than they have, and the gap between our rate of growth of productivity and the German and Japanese rates is bigger than it was in the sixties. In industries where everybody would agree that they have nothing to learn from us, their rates of growth of productivity are still enormously high, like in steel. The Japanese steel industry has not one bit to learn from the Am-

erican steel industry, but their rate of growth of productivity hasn't slowed down. I think there is no question that the open nature of the system is going to put tremendous pressures on us to change our economy.

COMMENT: I agree with you that investment strategy should be shaped in such a way as to maximize the total net benefit from the national point of view; so it may be a positive thing if a person moves, say, from Ontario to Calgary, but on the other hand we should recognize the fact that there are pecuniary benefits that need not reflect real benefits from the national point of view. I also have one question. You have suggested that productivity measures could be improved by altering the present mix of consumption expenditures and investment expenditures, but when we do so it is possible that businessmen will see a declining demand, and how would they extend the time horizon as you have pointed out, so that they still will find this profitable?

LESTER THUROW: Well I think it requires the Bank of Canada and your fiscal authorities to be fast on their feet, and maybe they aren't, because the simple fact of the matter is for a while you make investments to make factories to build investment goods. It is absolutely clear that the productivity problem cannot be solved in the current macro-economic context of repeated recessions fighting inflation. You can decide to march down the anti-inflation road, or you can decide to march down the productivity road, but there is no marching down both of them at the same time under the current strategy, so you either have to have a different strategy for fighting inflation, or you've got to give up one of those goals in the short run. I would argue that no matter what George Freeman does at the Bank of Canada, there is going to be a 10 per cent rate of inflation in the 1980s in Canada because we know that in the 1980s there are going to be repeated energy shocks. He very carefully said, 'We could squeeze inflation out if there weren't any supply side shocks,' but of course there will be supply side shocks, especially with you in Canada with oil at $16 a barrel and world prices at $32. It's fine to declare war on inflation if you have a procedure for winning it, but if you haven't and if you are going to fight trench warfare for the next decade, what you will do is grind up the economy, and don't think you are going to solve the productivity problem

in the current context of deflationary budgets and deflationary monetary policies. As I said in my paper, who would invest in April, in the United States, as corporate bond rates were going from 14 to 19 per cent? Who would invest in June in the United States when 25 per cent of all manufacturing capacity was idle? There is no twisting the economy towards investment in the current monetary and fiscal context, and so you can think of it as one of those cruel dilemmas, because I agree that there are no good alternatives, and I think what you have to do is think of your long-run strategy. What I would argue is that the right strategy in the 1980s is to concentrate on productivity and energy, and if you got positive productivity and you had energy shocks under control with energy independence, then you could squeeze inflation out of the system.

But I think there is a fundamental reason why wage and price controls wouldn't work in the current context, and it doesn't have anything to do with the efficiency of wage and price controls. Imagine you were running wage and price controls in the United States in 1979. In 1979 productivity fell 2 per cent; so if you wanted a zero rate of inflation you would have had to send out a 2 per cent wage reduction notice to every American. OPEC raised its share of the American GNP from 2 to 4 per cent, and so you would have had to send out another 2 per cent wage reduction notice. Now what would we have done in that situation? We would have killed the messenger, i.e. the government that sent us that falling standard of living. Now we have the falling standard of living anyway, because inflation was at 13 per cent and wage increases were at 9, but the government didn't have to deliver the news directly. That's the real reason why we are not going to have wage and price controls - they just aren't viable. When the average citizen says, 'Control inflation,' he doesn't mean, 'Give me a falling world standard of living.' We who do the arithmetic know that that's precisely what is called for; one of the problems on the anti-inflation front is that no government has been willing to say that. George Freeman doesn't say to the labour unions, 'The way we are going to solve the Canadian inflation problem is all of you are going to take a 5 per cent cut in your money income'; yet that's what is called for. If we can't say that, we are not going to cure the inflation problem, no matter what he does with money behind the scenes.

QUESTION: You say there are a thousand explanations for falling pro-

ductivity. It seems to me that you are making too many explanations; I'm always suspicious of theories with too many explanations. I am just wondering whether you are describing the problem or analysing it. When you say, by way of another explanation, that the Japanese have longer time horizons that the Americans for example, is there some kind of market explanation, or is this a massive market failure that has national boundaries? Some of the most lucrative investments in the United States over the past ten years or so have been things like diamonds, gold, farm land, and housing, which are productive from a private point of view, but not from a social point of view; therefore it seems to me that the rate of inflation itself must have something to do with the fall in productivity. You find that in other countries as well, South America, for example: very high rates of inflation, very poor productivity, and very high unemployment, and I am just wondering whether this might be more of an overall explanation.

LESTER THUROW: When you talk about the difference in time horizon, remember that wasn't my hypothesis of what is wrong with the American economy, that was the Japanese hypothesis, and that was actually repeated just a week or so ago at the Harvard Business School by Mareta, who is the head of Sony.

I think we have a whole set of screwed up incentives inside the private economy. We have daily investors, who are in and out for the profit, even during the course of a day. Where does most of the investment come from in Japan? It comes in long-term loans basically from the Bank of Japan, which is not an investor interested in its daily rate of return. The same thing is true in Germany. If you go to the investment banks in Germany and Japan and ask, 'What is your job?', they will say their job is nurturing German or Japanese industry. If you ask the investment banks in New York City the same question, they'll say their job is making a profit and they'll make a loan to anybody. In the one case you have long-term investors, but we have chief executive officers with very short terms of office; they tend to be judged on whether profits went up in the five years when they were president of Exxon; that's going to give you a short time horizon; as I said, middle-level executives get a short time horizon because they are all put on a profit-centered basis. Our style of management is wrong. I asked those GE executives whether

they thought their time horizon was right, and they all thought it was too short. I think it may very well be that we have got ourselves into a situation where everything forces everybody towards a shorter time horizon.

Now inflation may do some of that too, and certainly inflation in conjunction with rules and regulations that slow up the process of building new facilities is apt to turn you in that direction. It takes America twelve years to build a nuclear power plant, and it take the Japanese six, and the difference is in legal suits.

I really think there are tremendous things wrong with our society. Take pollution in the steel industry for example. The Japanese decided to clean up steel pollution after we did, and they've cleaned it up before we have. Now the difference is they didn't get bogged down in ten years of arguing about what's the right device and in ten years of suits about who has to pay. Once they decide to do it they do it.

I was in Japan not long ago, and the head of Nipon Steel started a talk with the following story. He said, 'In the United States you have 220 million people; we have 110 million. You have 500 000 lawyers; we have 13 000. That's going to make us more productive. If I sued somebody else I would be dishonoured.' Well that's not the American or the Canadian way.

Last year I had an accident that was somebody else's fault and severed an Achilles tendon. Ninety-five per cent of the people that came up to me didn't say, 'Is you leg ever going to get better?' They said, 'Did you sue the bastard?' Well 'suing the bastard' is negative productivity. IBM has a billion-dollar anti-trust defence fund; that's a billion dollars not invested in plant and equipment, and a billion dollars ground up in something that in terms of these indexes is zero productivity. Lots of manhours of work, no output. Now we just can't afford to do those kinds of things. It isn't a market failure, it's a massive social failure.

QUESTION: My first question is, what is the right rate of growth for the United States? You tell us the big mistake of the English in the first part of the century was they didn't behave like Americans. Now some Englishmen would disagree that that was a big mistake. You now tell us that the big mistake of the Americans is they don't behave like Canadians, that they don't turn their sunrise industries into rising sun industries. Well

what is the right rate of growth? Americans do finance their new cars on credit and their houses on mortgages, and they don't save as fast. They have a shorter time horizon and a higher rate of time preference. Who is to say they ought to behave like Japanese because the right rate of growth is the fastest rate of growth?

The second question is this: given your argument that Americans do have short time horizons in business, where are you going to find American bureaucrats who will have different time horizons when they work for government? This is exactly what the English did. They said, 'In the business world these people don't make the right decisions, so we'll put them into government and suddenly they will make the right decisions.' Where are you going to find you Japanese-minded Americans?

LESTER THUROW: As regards the right way to go for productivity, I very carefully said at the beginning that if you are a classical or neo-classical economist there is no problem. That's your point. If we have negative rates of growth of productivity and the Japanese have 10 per cent plus, so be it, and I think that's quite right - if you are a market economist there is no problem in Canada or the United States. But we all know there is a problem, and therefore there is something wrong with being a market economist. I think the answer is we're not willing to live with the results.

What happens when the United States and Canada have a per capita income half that of West Germany? What happens to military and political alliances? What happens to our democracy? What happens to our social system? You see, I think England is down the tubes. I'm a bit of an anglophile and spent two years at Oxford. I love the English, and I always used to think they were going to muddle through; I don't believe it any more.

About a month ago I was at an OECD meeting where the British minister made the following statement, and he enjoyed it. 'We are going to solve the unemployment problem by forcing them out of the labour force.' Now 'them' was women and old people, and he was going to love it every-time he kicked a woman.

Before I went to the OECD meeting in Paris, I stopped to visit a trade union friend in England, who at the age of 43 had become a Trotskyite; now who becomes a Trotskyite at 43? I think that because of

economic discontent with a relative standard of living, the right wing of the Tory party is devouring the middle of the Tory party, and the left wing of the Labour Party is devouring the middle of the Labour Party, and now you get Anthony Wedgewood Ben versus Mrs Thatcher. Now when Mrs Thatcher is in power no private industrialist is going to invest if he knows that Anthony Wedgewood Ben is going to come in an nationalize everything. On the other hand, if Anthony Wedgewood Ben has nationalized everything, nobody is going to run an efficient nationalized industry knowing that Mrs Thatcher is going to come in and de-nationalize it all. I think you grind up your societies when you have to live in a world where other people have per capita incomes that are much higher than yours and your population learns about it. Nobody's happy in those circumstances, and I think the English have a lot of social things going for them that we in the United States don't have. Maybe you in Canada have great social institutions with lots of stability, but my impression is that we'll rip ourselves to pieces when we have a per capita income that Americans widely perceive as being well below that of Germany, Japan, and these other countries.

Now your second question I think is more important: where do you get Americans with Japanese abilities to take a longer time horizon, and I think that is the trick. Think of the automobile industry; Volkswagen is a partly government-owned firm that's a great success; British Leyland is a government-owned firm that's a disaster; Chrysler is a private firm that's a disaster, and the Japanese firms are quasi-private firms that are great successes. Now the answer is obviously not nationalization versus non-nationalization; the answer is how do you manage an efficient automobile industry, and where do you get the people to do it. You're quite right that simply putting people in the public sector does not make British Leyland effective or efficient. The real trick is how you to find the right people. Now in a country with 220 million people I don't think that's impossible, and if the worst comes to the worst I would hire a Japanese consulting firm.

COMMENT: Back in 1900 England was the world's policeman and had a heavy military burden, but the United States didn't have any military burden. Now Japan and Germany are passing us because they were defeated in World War II and weren't allowed to waste their time on arma-

ments, while the United States has a very heavy military burden and its best minds tend to go on unproductive things. Would you comment on the degree to which you think the slowdown in productivity is caused by the arms race?

LESTER THUROW: First of all if you look at the percentage of GNP spent on the military, it is quite true that we spend a lot more than the Japanese; we spend about 5 per cent of the GNP, the Japanese about 1 per cent of their GNP. The Germans spend 4½, but we do not have a military that is noticeably bigger than the Germans as a percentage of GNP, that's point number one.

Point number two: I think there is an element of truth in the argument you are making, and I wouldn't put it so much in terms of money as the quality of personnel. I remember at the height of the space program the head of the mechanical engineering department at MIT said, 'If you take the fifty best mechanical engineers in the United States, probably forty-five of them are at Cape Canaveral, because it's more fun to go to the moon than to design a toaster.' The same thing is true of military research: it's just a lot more fun to design an airplane that will go four thousand miles an hour than it is to design an airplane whose fuel economy is 10 per cent better. I think obviously on the money side it's just a question of allocating enough money, but where your really talented engineers and scientist go is a real problem. It is certainly true that because the Japanese, and I think to a lesser extent the Germans, don't do a lot of military R & D they tend to put more of their very talented people into civilian applications, and we may pay a price for that. I don't know how much military R & D Canadians do, whether you use that as an excuse or not.

QUESTION: You talk about differences in regional growth patterns as part of the normal process. I really don't disagree with that; in that process some regions are losers and some are winners. It seems to me that what we're looking at here is world redistribution of income, growth, and production, and if that is true we should be looking at this process from a different point of view. If, as you said in response to another question, sector growth means North Americans must content themselves with slower growth and lower real income, then it seems the policy should

be different; they should address the question that you raised yourself, the political questions, the social questions associated with this kind of world change. We know if we stop talking about Japan and North America and start talking about the world and the question of world-wide redistribution of production it is going to give rise to some enormous political, social, and economic problems. It seems to me - and I have spent almost as much of my grey-haired life in pursuit of productivity as you have your young life - that the pursuit of productivity - what, where, and how - may in fact be a mistake if in North America we should be investigating how we are going to survive in a world that is going to take a very different shape than the one we are accustomed to.

LESTER THUROW: The question really has to do with the inevitability of the process. I guess I don't think the process is inevitable; I think the basic problem is we are shooting ourselves in the foot. It's not that the wheel of history has turned and we are on the side going down, and somebody else in on the side going up. I really do think that we are putting needless obstacles in our way.

It is quite right to point out that when the price of energy goes up that is going to redistribute world income to those countries that are big energy producers. Now the other thing to be said about that, however, is that both Canada and the United States are potentially energy producers, and we both should be producing more energy than we use and exporting it to Japan and Western Europe, where there is very little capability for being exporters of energy. So I don't think the turn of the wheel, when it comes to energy, means the decline of the immediate American or Canadian economy, and I think that's a perfect example of both countries shooting themselves in the foot. I used to argue that there was no country in the world that had stupider energy policies than the United States, but Canada has now reached a new height of shooting itself in the foot when it comes to energy, and we just can't afford to do that kind of thing. I think the real question is not the inevitability - maybe it is inevitable - but we'll let history decide that; the only thing we can do is make sure we don't shoot ourselves in the foot as the inevitable happens.

GAIL COOK: If either Barry Bosworth or Les Thurow had to go to Detroit

or Windsor and talk to the UAW, what would they say?

LESTER THUROW: I would start out and say that the goal of everybody is to have a healthy automobile industry; and actually I had a talk with Fraser the other day at a GM assembly plant in Framingham, Massachusetts, and there were some UA workers there. The real question is how you get a healthy automobile industry. My diagnosis of the automobile problem is not that automobiles are a sunset industry. The North American companies had a quasi-monopoly because this was the only place in the world where there was a market for cheap big cars. There were big cars elsewhere in the world, but they were Mercedes and Citroens and they cost $40 000. If you have a monopoly where nobody else produces the product that you produce because there's no demand for it in their country, then you get sloppy, and a guy like Fraser will admit that the automobile companies and the automobile workers got sloppy on both engineering and quality. Then gasoline prices in the United States go through the magic point where Americans start to want exactly the same kind of cars as the Germans and the Japanese want; all of a sudden there's a tremendous market for that kind of car, and American companies don't have the production facilities to make it. Now what Fraser will tell you, at least in private, is he doesn't want protection for the North American industry because he thinks it's going to protect any jobs; it's a much more sophisticated argument than that. His argument is that if you buy a car and like it - and he admits you will like the Japanese car because its well built - then you get the habit and you go back and buy the same car, unless you get a lemon, or unless you want to buy the kind of car that that company doesn't sell, i.e. you want to buy a small car and they only sell big cars. His fear is that since the American car companies don't have the capacity for small cars, if you let the Japanese have the market for three years, American companies will never get the market back, no matter how good their cars are, because they can't be noticeably better than the Japanese. All they could be would be marginally better, and that never persuades you to shift from one car manufacturer to another.

Then the question is, what is the device by which the American industry, or the North American industry, is going to produce world cars that are competitive with Datson and Toyota? Are we going to do it by

having protection? Or are we going to do it because we have companies that know if they don't they are going to be out of business? Take the American steel industry; they have now had protection for six years. Are they any more competitive in 1980 than they were in 1974? The answer is clearly no, and I think if you offer people the chance for protection everyone takes the easiest option. If a businessman can go to Washington and get protection, he will never do the tough job of building a competitive car. Therefore I would argue that the real choice the automobile industry has to make is to go through a painful two or three years and because they know their life is on the line really make the switch, or to be protected for four or five years but at the end of that time be so weak that they will be like the current American steel industry - they will no more competitive in 1986 than they were in 1980. I am in favour of a healthy car industry; where we differ is how to get it, and that's why I argue that what we really ought to have is a social safety net for individuals, but no social safety net for firms. Think about the Chrysler bail-out. I would argue that everything was wrong with the Chrysler bail-out. First of all, every factory that makes small cars would have been bought by somebody, even if Chrysler had gone broke: Volkswagen, Mitsubishi, Ford. You know how the Japanese would have solved the problem? They would have forced a merger between Chrysler and Ford and had one healthy car company rather than two sick car companies. None of those Omni and Horizon plants would have been closed no matter what happened, because they are very valuable plants. On the other hand the Hamtramck plant would have been closed no matter what you did, and it was closed; you didn't save a single job with the Chrysler bail-out. Secondly, the right amount to make as a loan to Chrysler may have been zero, or it may have been $6 billion, because it would take $6 billion to design a competitive line of cars, but we know a billion and a half was wrong. It's enough to prolong the problem but not cure it.

I have no quarrel with the idea that we need a healthy car industry, but I just think that particular route isn't going to get you a healthy car industry.

Rapporteur's remarks

Michael A. Spence

It is difficult to cover all the interesting issues that fall within the broad topic described by the title of this conference. It is even more difficult to summarize a discussion that ranged over much of macro-economics, with a heavy dose at times of micro-economics, industry analysis, and industrial policy. As I heard the discussion, there appeared to be three main issues or problems. They are inflation, declining productivity, and investment. A central theme was whether and in what ways those problems are connected to each other in light of recent macro-economic research and trends in the economy. I intend to summarize the discussion at the conference under those headings.

INFLATION

There was general agreement that the inflation of the 1970s was the result of (1) dramatic changes in relative prices combined with a certain downward rigidity in wages and prices, (2) inflationary expectations that were then built into pricing decisions and labour contracts, and (3) strong elements of indexation in labour settlements, pensions, and the like. Few argued that excess aggregate demand was a strong causal influence in this period, although there is a relationship (somewhat elusive) between unemployment rates and rates of change of inflation. One part of the endogenous process of the transmission or diffusion of price increases is the relative-wage effect, described by Tobin in the literature and by Lipsey at the conference.

The solutions to the inflation problem that have been considered are (1) a gradual reduction in inflation through control of the money supply, (2) a dramatic shock in the form of a once-for-all drop in the rate of growth of money designed to revise expectations and thereby lower per-

manently the pattern of increase of wages and prices, (3) policies in the tax area designed to increase supply (largely through investment), and (4) tax policies designed to provide an incentive for lower increases in wages.

While there was no systematic discussion of the comparative merits and demerits of these approaches, several participants expressed the view that policy (2) was, at the very least, risky. If expectations prove resistant to change in response to a policy of suddenly reduced monetary growth, the effect on aggregate demand and unemployment could be far larger than anticipated and politically costly. Supply-side policies under (3) designed to increase investment and output are believed to have relatively weak short-run effects. That does not mean they should be abandoned, but rather that they are not a potent weapon against short-run inflation. There was little discussion of tax incentives for restraining wage increases. I thought I detected some scepticism about their effectiveness. That leaves moderate monetary restraint, a policy that acts slowly and that impairs, at least to some extent, efforts to increase savings, investment, and productivity. In short, there was little optimism that inflation could be reduced without impairing the performance of the real side of the economy.

Taxation

Messrs Hartle, Bossons, Jump, and Rea reported on the effects of a variety of changes in the tax system designed to eliminate inflationary distortions. The result concerning reducing corporate taxes to compensate for the over-reporting of earnings for tax purposes were of particular interest. This over-reporting results from the depreciation of fixed assets that are based at book value and from the FIFO (first in first out) accounting treatment of inventories. The effect of inflation on effective corporate taxes is large. During the 1970s the effective increase in the corporate tax rate is in the order of 20 per cent so that in constant dollars the tax rate is nearer to 60 per cent than to 40 per cent. There is a capital gain on corporate debt for the corporation due to unexpected inflation that partially offsets this induced increase. The authors reported that a compensating adjustment in corporate tax rates in a simulation using the FOCUS econometric model had the effect of increasing investment by 10

per cent even when the lost revenues were made up by an increase in indirect taxes. Their paper should be consulted for a more detailed report of the results.

The size of the inflation-induced tax increase combined with an apparent need to encourage (or at least not to discourage) investment for reasons related to productivity suggests either that the corporate tax should be indexed or that the accounting for tax purposes should be changed to an inflation-adjusted basis. Professor Shoyama expressed some doubts about the political feasibility of indexing corporate taxes by either method.

PRODUCTIVITY

The stagnation part of the stagflation problem is usually thought of as a decline in the growth rate of per capita income or as a decline in the rate of increase of output per worker. Professor Thurow reviewed the shifts in rates of growth of output per worker in ten sectors (or 'two-digit' industries) in the U.S. economy for the purpose of discovering where the reductions in productivity growth had occurred. Productivity has declined in almost every sector, communications being the notable exception. Moreover there has been some shifting of the working population into industries of lower productivity, particularly the service industries. At least statistically, this further accounts for the reduced growth of productivity. Thurow attributes part of the decline in productivity to a fall in the capital/labour ratio. The latter, it could be argued, fell for good economic reasons since the price of labour compared to capital fell. And that relative-price shift was at least in part the result of the abundance of labour resulting from the baby boom and the increased participation by women in the work force.

Thurow argued that the decline in U.S. productivity growth in relation to its major competitors and trading partners was unacceptable. The reasons for that relative decline are not entirely clear, at least to this observer. Certainly Japanese savings rates are much higher than U.S. or Canadian rates. Investment is financed by debt to a much greater extent in Japan, though I would argue that the debt in Japan is more usefully regarded as equity. Japanese executives are reported to have attributed their competitive success in part to the excessively short time horizons

that appear to characterize U.S. corporations' investment decisions. It seems fair to say that as with productivity problems, there are a myriad of factors contributing to the differential rates of productivity growth, savings, and investment.

The question of the welfare implications of these differentials also arose. Specifically, is the existence of differential rates of investment and productivity growth prima facie evidence of market failures in one or the other country, or might they be attributed to differences in tastes? That is a hard question to answer empirically, especially if one believes there are 'artificial' obstacles to investment, at least in the United States, that might prevent the market outcome from having its optimality properties.

INFLATION AND LABOUR MARKETS

Bosworth argued that in some important U.S. industries - steel and automobiles, specifically - wages are negotiated by a formula that includes cost-of-living increases and 'productivity' increases - the latter really being fixed increases in real wages. These formulas have been used for about thirty years without substantial alteration. His data show striking increases in the wages in those industries in relation to the manufacturing average, and the increases in the relative wages are highly and positively correlated with economy-wide unemployment rates. This suggests that there may be two groups of labour markets in the United States: one insensitive to depressed demand, the other sensitive to it. In downturns or periods of restraint on aggregate demand, the latter respond with lower wage increases, but the former do not. The adherence to the formula is strong enough that wages are set accordingly even when the results appear to include a serious erosion in the firms' competitive position in relation to firms in other countries. The only hypothesis that seems consistent with this behaviour is that the industry and its unions expect that trade protection will be forthcoming in the event of international competitive difficulties.

In the face of this sort of institutional process for setting prices and wages and for defending them against competition, it is difficult to find a strategy for controlling inflation that has much chance of success. The non-indexed sectors catch up in upturns, widening the spectrum of wage and price increases, while the indexed sectors appear immune even to

restraint on aggregate demand. And one is tempted to conclude that the only really effective solution would entail a partial dismantling of the aspects of the institutions and contracts that make the setting of wages relatively insensitive to the economic environment.

It should be emphasized that the formulas described by Bosworth are not to be thought of as the only or the primary causes of inflation, but rather as a part of the structure that sustains inflation once it begins.

In an economy with the characteristics described by Bosworth, controlling inflation by using aggregate demand restraint raises questions of effectiveness and equity. Since one part of the labour force is by hypothesis immune to all but the severest policies of demand reduction, the burden will be born disproportionately by the non-indexed sector, and the effects of the policy will be largely confined to the effects on wages in the more competitive markets. Moreover, to the extent that incomes are more elastic in the markets of the non-indexed sector, the workers in those markets will bear a disproportionate share of the unemployment burden. The correlation between indexation and demand elasticities across U.S. industries and markets is of course an empirical question on which we had no evidence at the conference. It strikes me as a useful avenue for research.

INDUSTRIAL POLICY

Supply-side economics has many facets. For some it refers primarily to macro-economic policies, mainly in the tax area, that are intended to stimulate investment and growth. In my view, an evaluation of these approaches (many are sensible-sounding policies) is hampered by our very imperfect understanding of the determinants of investment. And therefore it is hard to have confidence in predictions about what the real effects of these sorts of policies might be. For those of us who study industries, the determinants of investment are many and complex. It is not difficult to subscribe to the qualitative proposition that policies that either lower the costs of capital or increase the rates of return are likely to stimulate investment. But by how much varies considerably from industry to industry. The steel industry, facing high costs and stiff foreign competition, is unlikely to respond very much to tax incentives in the ranges being talked about. Similarly investment in the automobile industry is

being driven by the necessity to transform the product line to stay competitive. Tax policies may make incremental changes in the returns, but the pattern and magnitude of the investments is driven by other forces. In electronics, telecommunications equipment, and office machines (principally computers), investments are high and are driven by competitive forces and technology; the competition includes an important international element.

The point is not to argue that supply-side tax policies and related policies are ineffective or that they should not be introduced, but rather to suggest that if one wants to understand and stimulate investment, one has to be able to distinguish industries and sectors.

This leads some of us to the conclusion that industrial policy is a legitimate and important element in a portfolio of a supply-side economic policies. Among those who share this view, and I count myself among them, there is as yet little general agreement about what the right policies are. The possibilities, some of which were discussed at the conference, are many. Without attempting an exhaustive catalogue, let me indicate the items briefly. The motivation, organization, and time horizons of North American business organizations appear to create problems in the international arena. The capacity of our economies to provide capital for large investments and to spread risk has been questioned. The strategic use of trade policies to compensate for competitive disadvantages created by the policies of other governments is another component of the problem. Thurow and others are doubtful that government regulations and the regulatory process (including antitrust laws) have a favourable effect on the allocation of resources.

It is not possible at this stage to resolve these complex issues. But it is becoming increasingly clear that events in our economies and in the international environment will force the debate to occur. And it would be useful if, at the outset, industrial policy at the micro-economic level were regarded as a complement to, rather than a substitute for, macro-economic approaches to the same problems.

One topic of potential importance in Canada that was not mentioned is the effect of the growing strength of natural resources on the competitiveness of other sectors, particularly manufacturing. Canada's resource wealth combined with the rising relative prices of natural resources will by definition increase the country's comparative advantage in resources and

decrease its competitiveness in non-resource sectors. This will occur by means of the inflation-adjusted exchange rate. It is important to note that this change in comparative advantage is not the result of the rising cost of energy consumed in non-resource sectors. Nor is it the result of regional differences in the mix of resource and non-resource industries. Rather it is simply the effect of Canada's having to spend less (in relation to the other countries) outside the country for its resources. It seems to me that policies on the manufacturing sector are a legitimate part of supply-side economics. I would argue for temporary trade policies that protect manufacturing industries from sudden shifts in their competitive position vis-à-vis other countries, but these policies should have an expiration date, so that the adjustments that must be made will in fact occur.

STAGFLATION AND INFLATION

Inflation in the 1970s is attributable in part to large and sudden changes in relative prices, changes that in our economies are accomplished by price increases, rather than price reductions. For importers of oil, there is the additional inflationary pressure caused by the attempt through wages and prices to undo the loss of real income and wealth caused by oil price increases. Recent policy responses consist largely of monetary restraint, which has the effect in the short run of reducing aggregate demand. This has led some to conclude that attempts to stimulate investment and growth with supply-side tax policies may be ineffective. In periods when there is a shortfall in aggregate demand, one wonders whether the elasticity of investment with respect to rates of return or costs of capital are large enough to do much good. It seems fair to say that, reading between the lines at the conference, there is considerable divergence of opinion on these points.

Perhaps the literature in trade and development is useful here. Though domestic aggregate demand is surely an important determinant of investment opportunities, it is not the only determinant. Nor is it perceived as such by countries in which import substitution and the growth of export lead are much discussed. Particularly for Canada, and especially in periods of high unemployment and underutilization of capacity in the domestic economies, policy options designed to stimulate (or perhaps simply to eliminate obstacles to) import substitution and export growth ought to be on the list of supply-side options.

SUMMARY

The papers presented at the conference were stimulating and provocative. They reviewed the 1970s in some detail with the purpose of understanding how formerly successful models and policies appear to have provided only limited guidance in that decade. We could usefully have spent more time on distinctly Canadian problems, but one day is not enough to cover the entire subject. And surely the view of the participants was that the problems in the United States and Canada are sufficiently similar and connected at this time to warrant simultaneous review and comment.

Financial measures as 'supply-side' policies

John Grant

It would be wrong to think that financial policy is simply 'demand oriented,' although monetary restraint does primarily govern the pressure of nominal demand. A number of major areas of policy are primarily concerned with the financial structure of the economy, rather than the 'physical' structure, and are likely to bear importantly on the efficiency with which the economy delivers goods and services to meet future demand.

In this note I wish to explore very briefly three of these areas: pensions, the regulation of financial institutions, and the determinants of the real cost of capital.

PENSION AND RETIREMENT INCOME POLICIES

It has become evident that Canada will probably not be able to draw on a fast-growing supply of labour much longer. But we can expect continued major inter-industry and inter-regional migrations. Indeed, we must facilitate such migrations in order to help workers optimize their job choices and thus maximize the economy's flexibility in making itself energy-efficient. A large stumbling block is the lack of portability in pension entitlements. A worker below the age of 45 moving from one employer to another usually forfeits the employer's contributions for past service and receives his own contributions plus interest in a lump sum. Although he can put the money into a registered retirement savings plan, the worker on entering new employment often cannot apply the lump sum to 'buy in' past service equivalence with the new employer. Even without quantitative analysis it is easy to see that this system probably reduces labour mobility substantially. Employers obviously wish to capture back the costs of training, and any sensible wage system would allow for a

'loyalty' or 'experience' gradient in pay scales. But a strong case can be made that the present system is highly inefficient even from the employer's point of view. It is particularly inefficient because it paralyses 'good' and 'bad' workers alike and because it provides a senseless windfall to the previous employer's pension plan when termination actually happens. Often a firm anxious to hire an older worker must pay an inflated salary to compensate him for the loss of the accrued pension rights, which of course is a good reason not to hire him after all. Given the relatively high inter-regional shift rate that we are likely to want to promote in this country, one would also urge that pension reforms be co-ordinated between the provinces so that full portability of vested rights is assured no matter where a worker moves.

Another financial anomaly in the management of the country's pension system has to do with our relative lack of success in relating money management criteria to long-range investment performance. Many studies have shown that over the medium term (five years or longer) realized rates of return on diversified equity portfolios vary substantially and consistently outperform those on fixed-income portfolios. This fact is due partly to the vulnerability of fixed-income capital values to accelerating inflation, but not entirely. A considerable part of the high rate of return on common share portfolios results from the fact that the productivity of capital, like that of labour, has tended to grow over time, so that the owner of the capital is able to draw out a rising stream of real dividends over time while still providing adequate funds for reinvestment in the growing enterprise.

In principle, pension funds should be the vehicles most suited to take advantage of these long-term high returns, because - in a growing economy - rising contributions tend to overwhelm pension payment obligations and thus minimize the need for liquidity. But common stock prices, of course, are highly volatile. Current pension legislation appears to over-emphasize disapproval of volatility. Trustees have tended to downplay the role of common shares because their volatility can generate instantaneously an apparent deficit or an equally apparent surplus, and thus an actuarial obligation on the employer to embark on an undesired temporary program of additional payments into the plan, or alternatively an unsustainable opportunity to make only very small payments for a period of time. The result of this legislation is that pension plans usually invest

less of their assets in common equities than would be optimal in the long run. I do not think that it is beyond the wit of man to redraft the legislation to recognize a broader, more economically meaningful concept of prudence and stewardship. Such redrafting could produce, over decades, a much more efficient capital market in Canada, with dramatic benefits not only to pensioners but also to the corporate sector and the market economy as a whole.

FINANCIAL ASPECTS OF EFFICIENCY

Not enough attention has been paid to the prospective gains in efficiency that are likely to come as more and more transactions are tracked by, and managed by, computers. The rise of the microprocessor, combined with low-cost data transmission media such as optical fibres and digital data transmission standards, implies that a very great number of the sub-processes that make up 'economic activity' will be counted, measured, started, monitored, stopped, and tabulated by computers, many more than today. We are becoming familiar with applications such as monitoring of bus movements in traffic, automated or 'robotized' subassembly operations in manufacturing, and the idea of electronic mail.

The area of financial management could make dramatic efficiency gains also, and this may be the most important opportunity of all. Much of what is called 'financial management' really means accounting, reporting, and measuring. Bankers assess creditworthiness on the basis of a number of 'financial ratios' based on crude samplings and comparisons of aggregates that reflect data collected at diffent times, incompletely, and often measured with 'rubber yardsticks.' As a result, both the banker and the firm's own financial manager impose safety margins that reflect the high cost of getting the information and the imperfection of the information itself. Just as inventories of physical goods are often held in excess because managers cannot assess the true probabilities of being out-of-stock, so too 'financial inventories,' that is, cash balances, accounts receivable, and other assets, are held much in excess of likely requirements, to satisfy rules devised in a world of expensive, imperfect information. As we move quickly to an information-rich environment, in which the marginal cost associated with capturing and analysing even small transactions is much lower than it is now, we will undoubtedly find a major

economy in management in the broadest sense, and not least in its 'financial' components. As we consider what policies should be adopted in the fields of banking, monetary policy, communications, databanks, and cable transmission, we should recognize that there are massive 'supply side' benefits for the economy if we take a long-sighted view.

THE COST OF EQUITY CAPITAL

Since the world is 'stochastic,' that is, most decisions are taken in the presence of considerable uncertainty, individuals and corporations must give great attention to ensuring their solvency, that is, the ability to meet future tests of creditworthiness with a high probability of success. We observe that securities issued by borrowers, both debt and equity, are priced to reflect investors' perceptions of the borrowers' financial health. High rates of return on invested capital, low ratios of fixed liabilities to invested capital, high liquidity, and large 'size' are all important measures in explaining the cost of debt and equity capital to a firm. Therefore, to the degree that the cost of capital is an important cost in a firm's operations, government policies that help to minimize it (or which promote the conditions listed above) will have 'supply side' implications.

This is not to argue for the promotion of saving rather than consumption decisions, but rather to argue for the adoption of policies of economic management which aim the economy along a sustainable track for the medium and long terms, rather than encouraging private sector consumption or investment decisions that reflect an unsustainable, over-optimistic assessment of income potential. In this sense, steady monetary discipline, and fiscal policies aimed at encouraging 'prudent' ratios of external obligations to income-generating capacity, themselves carry 'supply side' benefits for society, for corporations, and for individuals.

Understanding and treating stagflation in Canada's open economy

Lorie Tarshis

While I intend in this paper to deal primarily with policy for easing stagflation in an open economy, I find it necessary to begin with a short account of the mechanism through which developments abroad have contributed to, compounded, or eased Canada's stagflation problem.

The explanation for stagflation like that for its rather less harmful relative, inflation, must be set out in at least two stages: (1) an analysis of the initial shock which brings about a one-time rise in price level, and possibly a change in aggregate output and employment; and (2) a study of the process that leads, at least for a time, to further price rises and to a fall, or perhaps to continuous falls, in output. Obviously a situation in which output continues to fall as prices rise is more harmful than one in which prices rise while output remains stable but low. But the term stagflation seems to accommodate both developments, and so will our analysis.

Because the focus of this conference is on 'supply,' I shall so far as possible limit my consideration of causes and cures to those related to supply.

The rather simple-minded schema that I shall use is as follows:

A supply shock would lead to an increase in the price level if it brought about, directly or indirectly, (a) an increase in variable (or marginal) costs of firms operating in this country or (b) an increase in the markups on variable (or marginal) costs set by such firms. The following are examples of supply shocks from outside that would yield increases in variable (marginal) costs:

¶ a very large increase in the price charged by the exporter of anything that Canada imports, especially when imports are high and/or when there is no really acceptable substitute and the price-elasticity of the

Canadian demand is therefore low (for example, for petroleum, coffee, sugar);

¶ a very large increase in Canada's supply-price of anything that Canada produces and uses in significant quantities where the increase in Canada's price is chiefly the result of developments abroad (for example, wheat harvest failures abroad or a rapid increase in U.S. demand for forest products, and generally the speeding up of inflation abroad);

¶ increases in wage rates in Canada that occurred in response to wage increases elsewhere - for example, for labour organized in an international (Canada-U.S.) labour union;

¶ a significant rise in rates (in Canada) for taxes that enter into the marginal (or variable) costs of producers (including retailers), when the pressure for the rise has its source in external developments (for example, an increase in Canada's balance of payments deficit might lead to the adoption of such a policy);

¶ an increase in Canada's tariffs on imports or a reduction in quotas on such imports whether enforced by Canada or by the exporter, when the effect is to increase the c.i.f. price of the product in Canada (e.g. eggs, television sets from Japan, or possibly Japanese autos);

¶ a decline in the price of the Canadian dollar in foreign-exchange markets that would increase the price in Canadian dollars of her imports.

The following are examples of supply shocks from external sources that could lead to (b) above (an increase in markups):

¶ a fall in the foreign-exchange price of the Canadian dollar which by increasing protection for Canada's producers from foreign competition might strengthen the degree of monopoly; or

¶ an increase in interest rates in Canada because of concern over payments' imbalances or a declining Canadian dollar which might, if interest rates move high enough, discourage firms from holding inventories, and hence lower their productive capacity and indirectly weaken competition;

¶ higher costs of importing (see above) which weaken competition, and so raise markup on costs;

It will be obvious that some of the developments listed above as possible are not at all likely.

OPEC's two major price increases in the 1970s, harvest failures in Eastern Europe, in sub-Saharan Africa, Brazil, the U.S. mid-west, and the citrus-growing areas of the south, together with the fall in price of the Canadian dollar represent supply shocks whose origin, if not entirely outside Canada, was certainly in part external. In every instance their effect was to bring about an increase in prices because they lowered the economy's supply function.

I shall say more about the supply function later, but in simple terms it is the relationship between two variables: the aggregate output that the producers of the economy would supply (as now measured by the GNP in 1971 prices) and the price-level (as measured by the implicit price deflator for the GNP). Such a relationship, if it is to be useful, should cover not only the actual level of output supplied and the actual price level for the same date, but also various arbitrarily selected alternative output levels and for each of them the price level that would rule on the assumption that everything but output itself (and of course the inputs of factors of production required to produce each such output) remained the same.

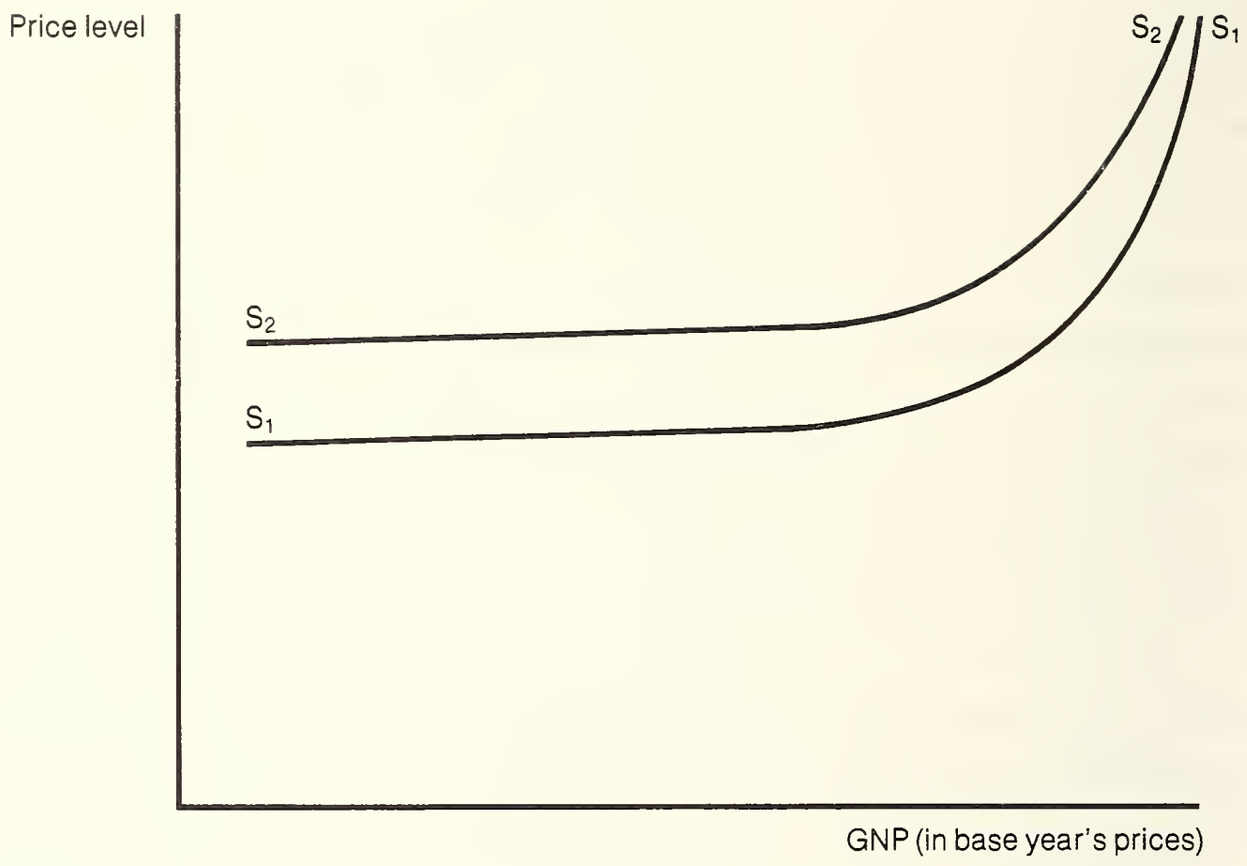
Such a supply function can be represented in a diagram, or in a table with two columns. Because it is easier to see it at a glance we shall represent it graphically. It is often drawn like S_1 in Figure 1.

Any of the supply shocks that would lead to an increase in the price-level, such as those discussed above, would shift the supply function or the supply curve to S_2.

The actual price level (and, to anticipate, the aggregate output) are determined at the point of intersection of the economy's demand function D_1, (see Figure 2), which is described below, and the appropriate S-curve. Thus, if S_1 is shifted to S_2, while the economy's demand remains unchanged at D_1, the price level would rise from P_1 to P_2. And the aggregate output would fall from Q_1 to Q_2.

Some of these shocks would be expected to affect adversely not only prices in Canada but also her aggregate output. Generally, aggregate output would fall significantly if the shock were to lead to: (a) a significant rise in Canada's imports, with no offsetting rise in exports; or (b) a fall for any other reason in the purchases of domestically produced output by Canada's consumers, business firms, or government, as a result, for instance, of a shift in income from 'high spenders to low spenders,' or, as noted just previously, from domestic producers to pro-

Figure 1

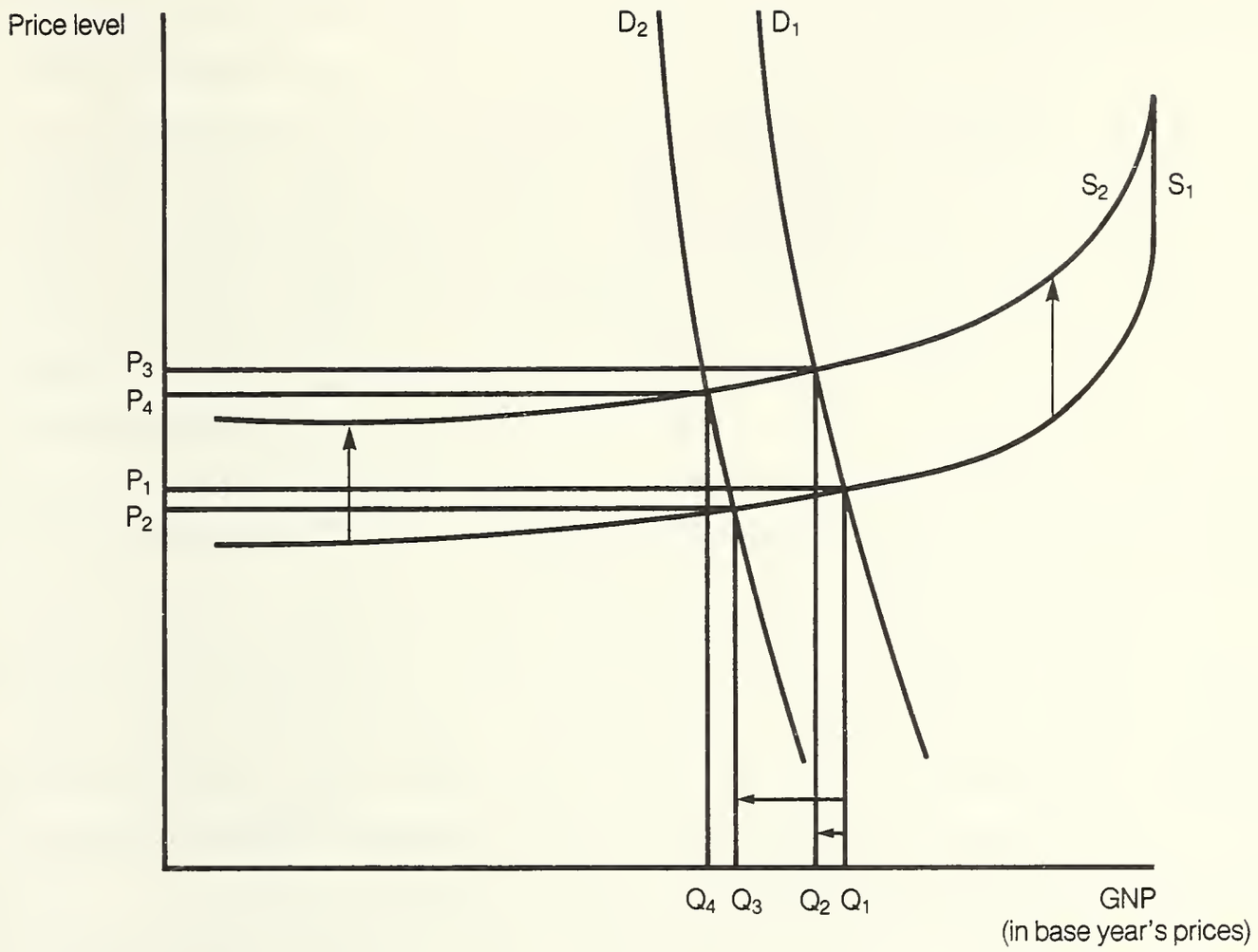


ducers outside Canada.[1] A rise in taxes, assuming that the addition to tax revenues is not used to finance an increase in government purchases, or a shift in income from ordinary buyers to, say, the Alberta Heritage Fund are examples of such a diversion of funds from high-spenders to, at best, low-spenders. And because such a diversion lowers the amount spent for domestically produced output, it would almost certainly lead to a fall in aggregate output.

The effect on aggregate output can be visualized most easily by drawing the economy's original demand curve on the diagram that contains S_1 and S_2. The aggregate demand, or macro-demand, curve will also be described in more detail later. But in general terms it too represents a relationship between two variables: the level of output that would be demanded and the price-level. As with S, the relationship should be extended so as to cover various levels of output (demanded) and the

1 Any of the changes that have effects like those just noted would shift D_1 to the left to D_2 in Figure 2. This is explained below.

Figure 2



corresponding price-levels, on the assumption that everything else remains constant.

Output will be Q_1 when the macro-supply and macro-demand curves are respectively S_1 and D_1. A fall in demand to D_2 with no change in S will cause a drop in aggregate output to Q_3 and a very small decline in price, from P_1 to P_3.

Any such development as those noted above would cause a fall in the macro-demand function represented here by a shift to the left (and downwards) from D_1 to D_2. If a decline in the macro-supply function, from S_1 to S_2 accompanied the decline in demand, as well it might, the price would rise to P_4 while the level of output would decline to Q_4.

A single, or one-time, rise in the general price level does not constitute inflation. But often a sharp rise in prices will provoke responses that, at their worst, would initiate not only a continuing rise in general prices but also a gradual reduction in aggregate output. Several such 'vicious cycles' should be considered:

The most familiar of these processes is the so-called price-wage-price cycle. It takes this form: a sharp rise in the price level may provoke labour into demanding at least a matching increase in its money wage. If its efforts succeed and money wages generally rise, prices will go up more or less proportionately and labour will discover that its aggregate real wage remains below the level reached before the initial price increase. And if that initial shock had directly, or even indirectly, caused a decline in output, the decline in labour's aggregate real wage would be even greater, with perhaps an even stronger demand from labour for a catch-up wage increase. However, increases in the money wage are not at all likely to bring an increase in the real wage, and therefore labour would have no reason to relax its efforts - especially since if any union were to cease trying its members would lose, and the members of unions that had continued to press for wage increases would gain.

Government would probably move to break the cycle at some stage, but if it were to act as government usually does it would try to restrain demand by a more restrictive fiscal policy - higher taxes and/or a reduction in government purchases - or a tightening of monetary policy, or both. Unfortunately, higher taxes and higher interest rates are likely to strengthen the cumulative process, at least for a time.

An increase in taxes may, depending upon precisely which taxes are raised, add to business costs; or if the social insurance premiums on the employees or personal income taxes are raised, they will lead to higher wage rates if labour acknowledges an additional reason for seeking wage increases - compensation not only for rising prices but also for the heavier tax burden it must bear.

It should not be concluded on the basis of this last point that demand restraint would necessarily be ineffective in curbing the cumulative inflationary process eventually. It is not likely to have any direct effect; firms facing falling demand are far more likely to lower their output than their prices, at least in the short run. But in the face of a rise in unemployment labour is likely to enter into the bargaining process with less bargaining power, and employers whose profits would fall too as the result of restraint on aggregate demand are likely to be less ready to accommodate labour's demand. However, the whole process would be very wasteful - for after all a rise of one percentage point in the level of unemployment for a period of one year could be expected to bring about a

fall of from 2 to 3 per cent in Canada's GNP, which amounts to a loss in Canada's annual output of from $6 billion to $9 billion or a weekly loss of roughly $145 million - and it would probably take many months before it became effective.

If we narrow the focus somewhat so that we deal with that part of the mechanism that might, through Canada's dealings with other countries, convert a one-time general rise in prices into inflation, one specific possibility deserves mention: if the effect of the shock is to raise prices higher in one country than in others, its government would be under especially strong pressure to restrain demand, with the consequences described above.

Canada, by keeping the domestic price of petroleum and its products well below world levels, has of course tried to avoid importing inflation. But with smaller price increases for gasoline and heating oil, Canada was bound to face other problems. The volume of her imports was likely to fall by less than in other countries; and the amount she had then to spend upon imports was bound to rise rapidly - perhaps faster than in most other countries. As a result, the Canadian dollar was subject to unusually strong downward pressures. Insofar as these pressures were not resisted, the Canadian dollar's price on foreign-exchange markets was likely to fall, and all her imports, not simply her imports of petroleum and other energy sources (which it would have been desirable to curtail), would fall too; and price inflation would proceed anyway.

The constrast between the inflation rate in Germany and Switzerland, where the domestic price of petroleum and its products was pushed or allowed to rise to the level appropriate to the much higher OPEC price, and the inflation rate in Canada or the United States, where energy prices at retail were kept from rising so far and so fast, is striking. One reason for this difference was that the price of dollars fell with respect to the mark and the Swiss franc.

The price-wage-price cycle described above and the tax-wage-price-wage cycle, together with the import-exchange rate-price-wage etc. cycle, would lead to a shift from S_1 to S_2 to S_3 etc., until the cycle ended. It might lead to a continuing increase in demand or to a one-time fall in demand and then steady rises. In the price-wage-price cycle there is no reason to expect any significant change in output, although prices would continue to rise until the cycle ended. In the other two cycles

there would be a one-time fall in output maintained at its new, lower level, with prices rising further and further. While it is difficult to believe that policy could be quite so misguided, government could generate a cycle that led to a gradual rise in prices and fall in output by raising taxes (on output), and as prices rose, raising them even higher in a futile attempt to end inflation.

Not every general rise in prices generated by one or more supply shocks is bound to lead to inflation, and if it does, not every bout of inflation is bound to continue indefinitely. But the longer it lasts and the stronger the expectations are that it will continue, the more powerful the institutional pressures become to keep it going. This is especially relevant in connection with the debt situation that is likely to develop in circumstances of severe supply shocks when such shocks have serious balance of payments consequences for many countries.

With the last round of price increases for OPEC's petroleum it is estimated that OPEC's members, along with other major exporters, can expect an increase in the annual surplus in their combined balance of payments of from $120 to $150 billion in 1980. In general this must mean that the combined deficits of other countries will rise by about as much. Unless the deficit countries are able to reduce their combined imports - and so reduce OPEC's exports - they will be forced to finance their imports of petroleum, food stuffs, machinery, etc. by borrowing 'hard currencies' or by getting credit from their suppliers, which comes to the same thing. If they are unable to borrow, or to get credit, they will simply be forced to do without these and other necessities. The situation for them will be even more serious because they will have to repay heavy debts contracted after the first OPEC price increase. Many of them have already found that repayment on schedule is impossible, and therefore many of the less developed countries will have to borrow not only their share of the $135 billion or so of new funds required but also enough extra to finance repayments that become due.[2]

They may manage to borrow some of what they need directly from the OPEC powers, and from such international agencies as the IMF and the International Bank. But for the most of their needs, they will have to rely upon Eurobanks and the sale of Eurobonds.

2 The developed economies will be obliged to finance their deficits too, but at least many of them possess large reserves of foreign exchange and a significant potential to build up their exports.

There is no reason to be concerned, for the present, about the ability of the Eurocurrency institutions to make such loans. Residents and institutions in OPEC and the other important petroleum-exporting countries have chosen to hold much of their swifly growing cache of U.S. dollars as deposits in, or term loans to, the banks and other financial institutions of the developed economies. And these banks, as their dollar assets grow no less rapidly than their dollar deposit liabilities to OPEC and so on, find themselves able to lend either directly or through other banks in the Eurocurrency market, which, in their turn, are ready to lend the billions of U.S. dollars that much of the world so eagerly seeks. They will also, of course, be able to make dollar loans to corporations and to governments in the developed world. But the demand for such loans is not likely to be so insistent, unless the monetary screws are tightened severely at home.

But the loans now outstanding are very large, and some are de facto, though not legally, in default. So, before we can be sure that lenders will be willing to lend still more, we must see whether they are likely to be satisfied that the applicants for these additional loans are creditworthy.

One feature of the present situation that is likely to increase the banks' confidence that their loans will be serviced and repaid at maturity is their understanding that as long as most prices continue to advance, the ability to repay of the borrowing countries, which are, after all, exporters of products whose prices are also likely to go on rising, will grow just as rapidly. In essence, then, continuing inflation helps to validate the very large debts already outstanding, and the expectation that it will continue paves the way for additional large loans.

It is estimated that the less developed countries, together with the countries of Eastern Europe, are now debtors in the Eurocurrency market to the extent of some $288 billion; in addition they must pay lenders each year approximately $47 billion for interest and for amortizing their debt. The lending institutions, generally speaking, regard the debts as good, or at least better than bad, but this judgment would have to be sharply revised downwards if the rate of inflation were to slow.

If inflation were ended, banks would not continue lending; indeed for their own survival they would have to call in any loans they could. But their efforts to curtail lending would threaten with bankruptcy the many institutions - official and private - that had gone so heavily into debt prompted by their conviction that the prices of their exports would go on

rising and they would continue to be able to roll over their debts when they came due.[3]

When the banking system finds that many of its credits are nearly worthless, individual banks in their turn are placed in jeopardy. And as soon as any creditor - the holder of a large deposit in a bank that had taken a sizable position in this market - became aware of how desperate its situation was, he would very naturally try to withdraw his deposit before the bank closed its doors.[4]

It would be easy to paint this scenario in even gloomier colours, but the exercise was not intended to present a realistic picture of the next great crash; its purpose was instead to suggest that any significant slowingdown of inflation, on a world scale anyway, would seriously threaten the whole financial structure of capitalism. Possibly one country - say Canada - acting on her own, could achieve its goal without having any such effect. But the major countries, assuming that they were to act together, would have to devise policies that would enable debtors, and their banks, to survive as the rate of inflation was being lowered. It is difficult to believe that as simple a policy as reducing the rate of growth in the money supply by, say, one percentage point a year would act so delicately that the system could survive.

Having brought the issue up to the point at which continuing inflation would seem to be better than its alternative, we must see whether there is a way out - a way that would work in the sense that the inflation rate could be slowed down and employment could be raised, but without creating enormous risks for financial institutions. More specifically, we must enquire whether Canada, by operating on the supply lever, could slow down her own inflation rate in a world in which stagflation continued to be at least as serious a problem as it is now.

It will be convenient to consider first the consequences of a change in aggregate demand because such an analysis will provide a standard against which the effects of a change in aggregate supply can be set for comparison.

3 I shall address below the question whether, if the slowdown were effected by supply measures rather than by reductions in demand, the results would be quite so severe.

4 This would be the occasion for the large central banks to demonstrate that they really were capable of serving as lenders of last resort!

We assume, not without strong reason, that in the current situation the macro-supply function is characteristically close to horizontal, while the aggregate demand function slopes down to the right very steeply.[5]

An increase in the macro-demand function would mean a shift to the right in the curve that represents it, and an increase in the aggregate supply function[6] would likewise be pictured by a shift in the macro-supply curve to the right - though since the supply curve over most of its range will be close to the horizontal but have a slight upwards slope, the most noticeable aspect of an increase is that it lies below the original supply curve. The two original curves and the ones that portray the higher functions are represented in Figure 3, with D_1 and D_2 being respectively the original and the higher macro-demand functions, and S_1 and S_2 the corresponding macro-supply functions.

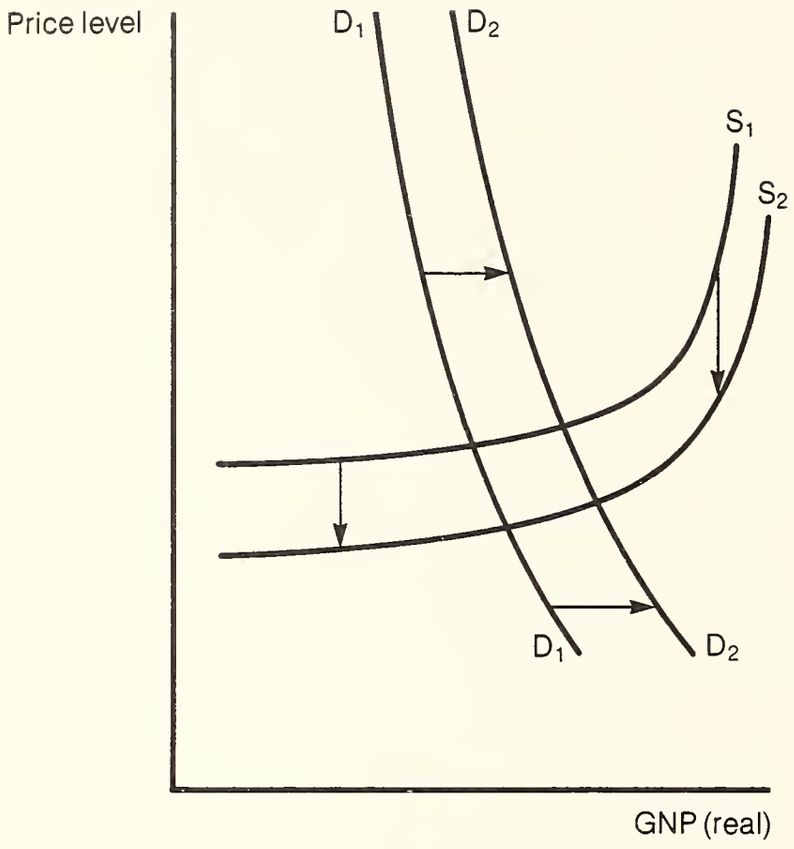
There are many ways of measuring the displacement, the amount by which D or S are shifted. We shall here measure the shift in D and S by the distance along a perpendicular from D_1 and D_2 and likewise from S_1 to S_2; and for an equal change in D and S, we shall mean that the perpendicular distances between the two sets of curves are equal (Figure 4).

The initial equilibrium position when D_1 represents the original macro-demand function and S_1 represents the original macro-supply function is denoted by the intersection j. In equilibrium the aggregate output of the economy is represented by Q_1, the price level by P_1. An increase in

5 By way of explanation, it should be pointed out that the aggregate demand function used here is different from the one with the same name that is a feature of Keynes's General Theory and of most Keynesian analyses. Ours is nevertheless derived from Keynes's aggregate demand function, but it differs in having the price level as one of its arguments. Actually it begins from the family of Keynes's functions with real income (=output) as one variable and the dollar amount that buyers would spend as the other, and with each member of the family tagged for a particular price level. All the other determinants of aggregate spending at each income level - for example, interest rates, the stock of capital assests, the level of government purchases, tax programs, the level and rate of change in final purchases, etc. - are assumed to be the same for all members of the family. Then for each level of income, which is identical to the level of spending, an entry to the function relating the price level and the level of income can be obtained; and the locus of all such entries is our demand function. In order to underline the fact that it is different from the conventional aggregate demand function, we propose to term it the 'macro-demand function'.

6 A similar argument suggests that it be termed the macro-supply function.

Figure 3

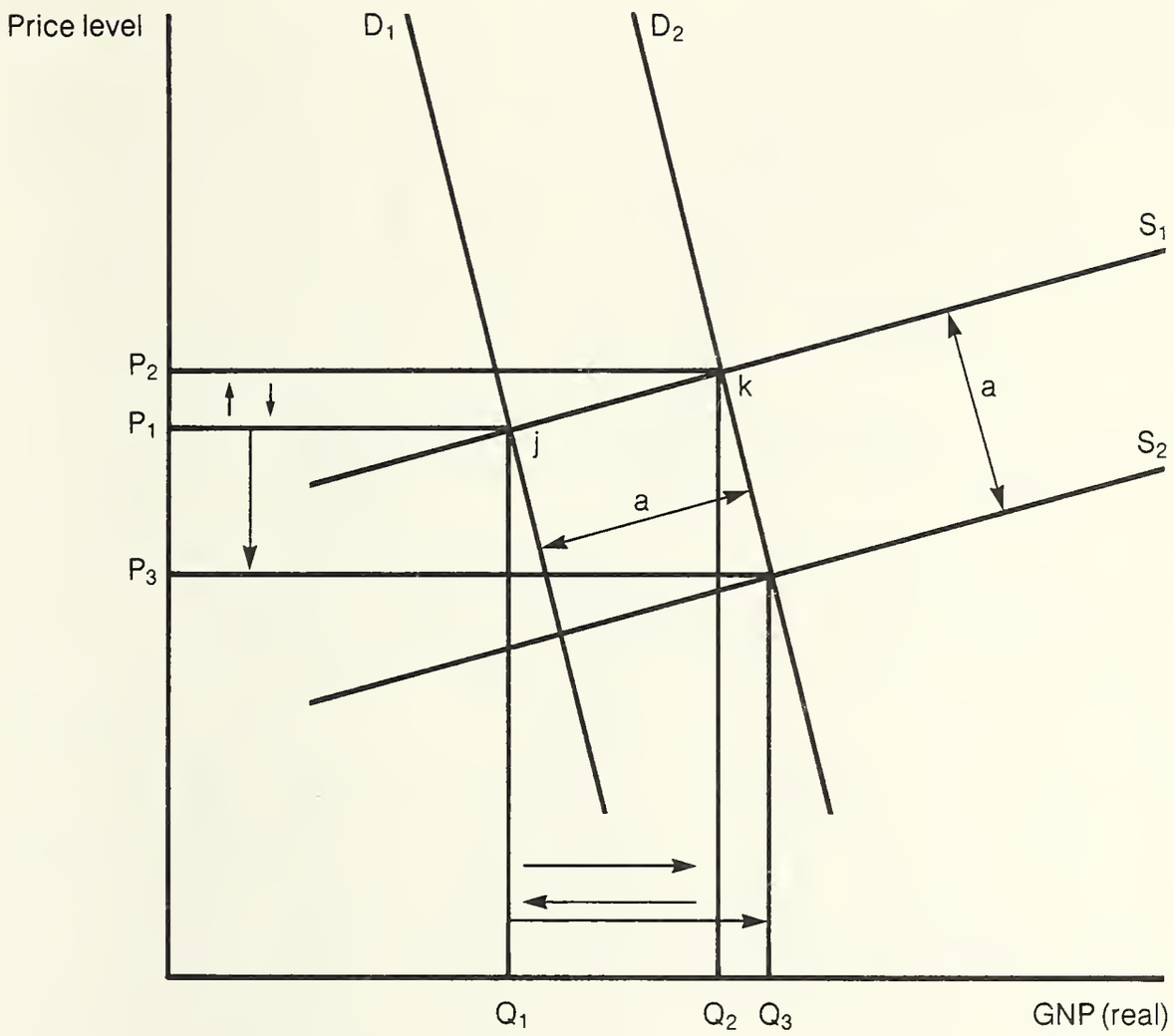


demand, to D_2, with no change in macro-supply, would shift the economy to the new equilibrium denoted by k; aggregate output and the price level would have increased as a result of the increase in D, to Q_2 and P_2 respectively. Although there are strong reasons to doubt that the macro-supply curve would have the same slope for increases as for decreases in demand, if we can disregard that doubt, a fall in demand from D_2 to D_1 would cause a small decline in the price-level from P_2 to P_1, and a fall in output from Q_2 to Q_1. Of course the reason for the relatively small decline in price and the much larger decline in output is that S_1 has been drawn nearly horizontal. If its upwards slope were greater, any shift in demand would cause a larger change in price and a smaller change in output.[7]

An increase in demand from D_1 and D_2 may lead to a change in the S curve, though usually with a lag. The effects of such a shift in S upon the price-level and aggregate output will be discussed after we have

7 There are reasons, certainly, for expecting the S curve to be nearly horizontal when output is well below the economy's capacity level and to approach the vertical only as aggregate output gets close to capacity. For the most part they rest upon limited observations of the

Figure 4

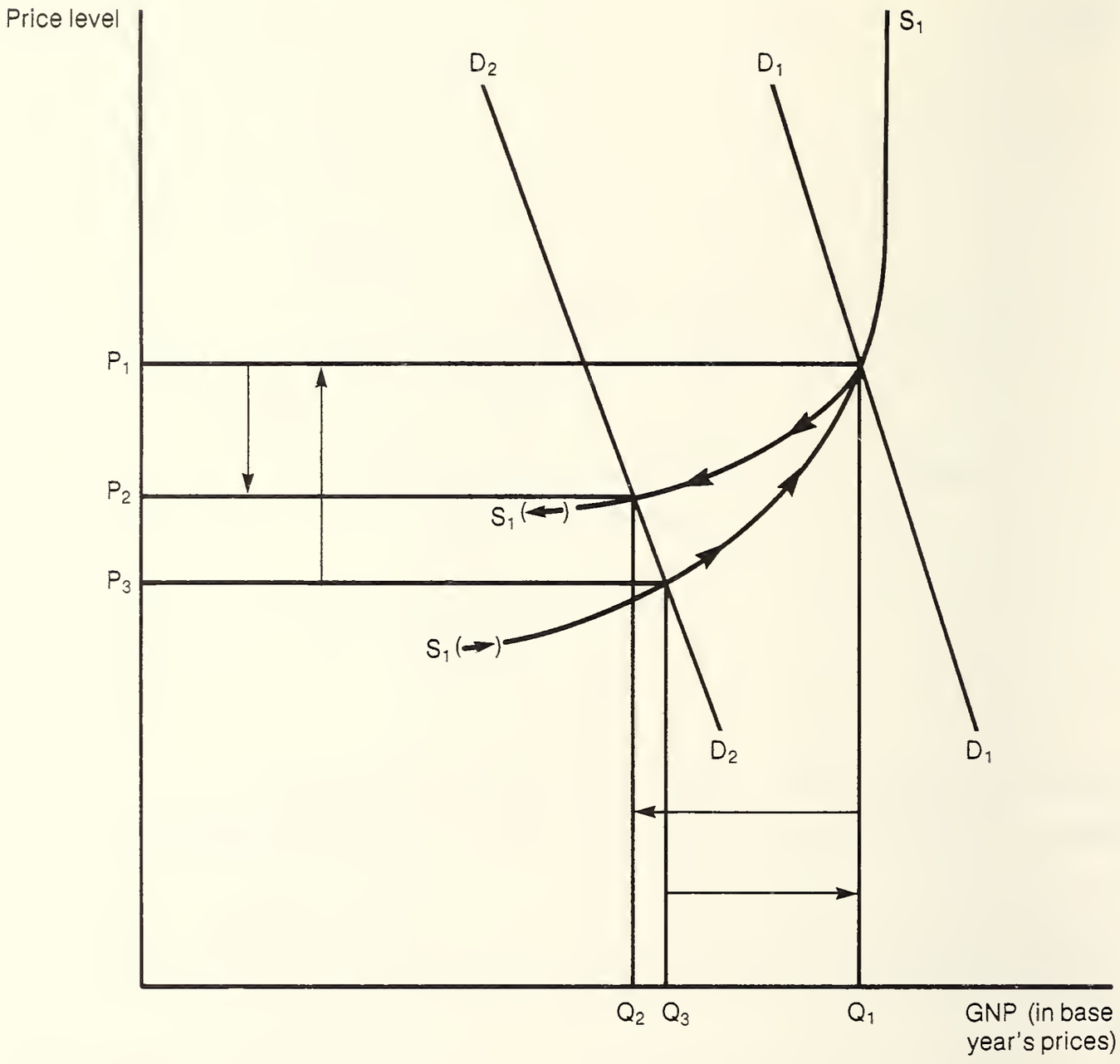


considered some of the reasons why such a shift in supply could be expected:

¶ If the macro-demand function were raised, output and employment would rise too, unless the economy were producing a near-capacity output. With unemployment down, and nothing else changed, wage rates would be higher, and as a result the macro-supply curve would be shifted to the

shapes of marginal cost or average variable cost functions. And there are persuasive reasons for expecting that the slope of the macro-supply curve when demand is falling will be more nearly horizontal than when it is rising. If follows, then, that when the economy is operating near capacity and the macro-demand curve is shifted a certain distance to the left from D_1 to D_2, the price level will decline by less and aggregate output will decline by more than price and output would have risen had the D curve been initially at D_2 and then been raised to D_1 (see Figure 5).

Figure 5



left. But this response is far from instantaneous. With union contracts often in force for a period of two or three years, their half-life would range from a year to a year-and-a-half, and therefore even if wage rates behaved in this way, it would probably take some months before the effects were fully realized.

¶ A higher macro-demand function, as we shall note below, is likely to mean in an economy as 'open' as Canada's that its balance of payments is thrown into deficit, or its deficit becomes larger. If as a result Canada's dollar falls vis-à-vis other currencies, the landed price of her imports will rise, and again that will mean a shift to the left in her macro-supply

curve. If the Bank of Canada instead chooses to maintain 'orderly markets,' or in other words if it chooses to support the Canadian dollar at, or very near, a predetermined price, it will probably do so by tightening credit, perhaps demanding, in addition, increases in taxes, and there will again be a leftwards shift in the macro-supply curve.

¶ A third, and this time an offsetting, development might result from an increase in macro-demand. An increase in macro-demand that was export-led would lead to an improvement in Canada's balance of international payments, with the induced rise in imports being smaller than the original increase in exports. The Canadian dollar would as a result be strengthened, and if its price were allowed to rise the delivered price of her imports would be lowered; and this would shift the macro-supply curve to the right. When in most of the rest of the world the macro-supply curves were being shifted to the left, a further export-led expansion would still be possible even though her currency was steadily growing stronger.[8]

¶ A second 'benign cycle' might be generated if the increase in macro-demand depended on a large increase in private investment purchases. Since a new technology is commonly introduced through the installation of new machinery, and usually the most recently purchased items will carry some improvements over older models, an unusually high level of such purchases would suggest that the growth of productivity would be speeded up. Eventually an increase in productivity would produce a rightwards shift in the macro-supply function. (If this argument is acceptable, very high interest rates would tend to reduce the rate of growth of productivity and hence move the macro-supply curve to the left).

These various interconnections will suggest that the economists' common assumption that a change in demand or supply can be considered with the other function unchanged is quite unsuitable for the analysis of any real-life development. It is not easy to think of anything that would affect macro-demand but not macro-supply, or vice versa.

Finally, suppose that it is possible to increase both D and S - say by the same amount. With D very much steeper than S, as we should expect

8 The situation until very recently of the German and Japanese economies could, I believe, be partly explained by such a 'benign' cycle, though it has perhaps been interrupted by the rather gross supply shocks imposed by OPEC's second major increase in the price of crude petroleum.

it to be when production is not very close to capacity, the price level would fall and output would increase as a result,[9] except in that special case when they increase by the same amount as measured by their horizontal displacement.

A policy of reducing those taxes that are most certainly treated as variable costs without reducing government spending would very probably raise both the macro-demand and the macro-supply functions.

At this stage we must consider the consequences of Canada's being a relatively open economy. One of the most striking features of the Canadian economy is that the marginal propensity to import is relatively high. This means that the ratio of the change in Canada's imports to the change in national income that brought about that change in imports will be higher than the corresponding ratio for such other countries as the United States, West Germany, or Japan. When aggregate income in Canada rises by, say, 100, its residents normally increase their purchases from other countries by 15 or more, compared to an increase in U.S. imports of no more than 5 for a similar increase in U.S. income. A relatively large part of any addition to the spending of Canada's residents thus 'leaks away' to other countries; a significantly smaller fraction of any such addition is therefore available to be directed to the purchase of Canada's products. As a result, the GNP multiplier for the Canadian economy is likely to be lower than the corresponding figures for the United States, Germany, and Japan. There is some evidence that in Japan an especially high fraction of any increase in its income leaks away into additional saving; if so, its multiplier would also be lowered.

Because her multiplier is significantly lower, Canada has much less power to change the demand for her own product; and although her macro-demand function can clearly be moved by shocks from the outside - e.g. by a large change in U.S. imports from this country - Canada would face serious difficulties if she were to try to raise it substantially by acting on her own. The problem would be especially severe if Canada were to try to buck the tide - to raise the macro-demand function for her product, when the rest of the work is preventing an increase in its macro-demand function.

9 Note especially in Figure 4 that an equal increase in D and S would cause output to increase from Q_1 to Q_3 while the price level would decline from P_1 to P_3.

Canada would face a second difficulty if she alone were to try to raise demand for her product so as to induce domestic producers to increase their output. Owing to the high value of Canada's marginal propensity to import, any independent attempt to boost demand would be almost certain to increase the deficit in her balance of international payments, thereby creating the threat of a further drop in the foreign-exchange value of the Canadian dollar.

Canada's decision to allow her dollar to flex was presumably made because the economic costs of a fall in its price were judged to be less than the presumed gains - that Canada would be able to mount an independent fiscal and monetary policy instead of having to follow U.S. policies 'slavishly.' But in recent years the Bank of Canada and other official policy-makers appear to have reversed their estimates. The Act in ways that imply that the costs of a fall to less than 85¢ (U.S.) for the Canadian dollar would exceed the value of autonomy over policy. When the price approaches that lower boundary of tolerance, the Bank moves to raise interest rates, even when, from the standpoint of domestic prosperity, a reduction in interest rates is called for. And higher interest rates would generally lead to lower private investment purchases and consumer spending on durables - as has been all too evident recently. Such developments would tend to offset the increase in the macro-demand function and the growth in national income, output, and employment.[10] Hence we may conclude that an independent and isolated effort by Canada to strengthen demand for her product would encounter serious obstacles.

However, Canada possesses one policy tool for the international sector that could be important, though it is rarely noticed. She can modify her tariffs and, probably more important, her quotas on imports, or, if the quotas have been set by the exporters, she can very easily persuade Japan, Hong Kong, Taiwan, South Korea, and the rest to relax their quotas for exports to Canada.[11]

10 Insofar as higher interest rates would attract capital imports into Canada and keep the imported capital here for a time, the offsetting reduction in demand need not be complete; but the reduction should not be entirely overlooked either.

11 It is ironical that Canada and the United States, which complain that they have become the victims of OPEC's control over petroleum exports and the resulting high prices, should have been so active in pressing Japan and the other dynamic economies of eastern and south-eastern Asia to restrict their exports of automobiles, television sets, tex-

Any raising of tariffs or tightening of quotas constitutes a supply shock with the same general effects as the OPEC supply shock had. But naturally they have been less powerful because domestic output has been available as substitutes. Still, if there were a strong desire to curb inflation, some relief could be found by doing away with these quotas and with other non-tariff barriers to trade.

The usual objection to such a proposal is that while the rate of inflation might be eased briefly, the relief would not be lasting; moreover the problem of unemployment would grow more serious, and that effect would endure. But it overlooks the point that any one-time change in the rate of increase in the price level can initiate a continuing cycle, and that if the rate at which prices increase should fall from, say, 11 per cent a year to 9 per cent, labour's wage demands at the next round would ease too; and the effect of that one-time supply shock could continue. As to the justified concern about a higher level of unemployment, there are other ways of tackling unemployment that do not have such serious effects upon prices and are likely, moreover, to prove more effective since they do not depend upon the acquiescence of countries to which we cause damage by raising our tariffs and tightening quotas.

Tariffs are almost always positive. But they can be negative; indeed Canada and, to a lesser extent, the United States now apply what is in effect a negative tariff but they do so in the one instance in which it is likely to do the greatest harm: to the import of foreign-produced crude petroleum. It is harmful because there are compelling and urgent reasons to lower the amount of petroleum imported and used in these two countries. But it is far from clear that the use of Japanese fuel-efficient cars, cameras, high fidelity audio equipment, recordings, or textiles should be curtailed.[12]

---

tiles, clothing, etc. to North America. The member countries of the European Economic Community have also, of course, imposed their own quotas or been able to persuade the exporting countries to restrict their exports into the Common Market.

12 The answer would be quite different if the supply of such products depended upon scarce or non-renewable resources. The more rapidly we use petroleum and its by-products now, the more rapidly will the day come when more can be obtained only at an astronomical cost. But our purchase of textiles from Taiwan, or of Japanese cameras and automobiles is far less likely to jeopardize their supply in the future.

There are, by now, compelling reasons for concluding that stagflation is not going to be remedied by policies - whether fiscal or monetary - that bring about a decline in macro-demand. Such policies simply do not work, as seven or eight years of failure show, moreover, it is difficult to be hopeful that even tighter control over the money supply, or tighter control over government budgets will work either - or that if a heavier dose were taken the patient would even survive to enjoy the success that so much unnecessary suffering might purchase. And even if, after a time, price inflation could be brought under control through demand restaint, the very real danger of financial collapse would have to be faced.

What then can be said for policies that operate on the macro-supply function? Could Canada go that route alone? Or would she be bound to face international constraints? What if the major economies were to use such policies? Would the likelihood of success become greater? And would there be greater reason for confidence that the current debt situation would be manageable and financial collapse could be avoided?

We begin the answer to these questions with a plea for moderation. After such a siege of inflation and stagnating economies as we have had to endure, it would be stupid in the extreme even to hope that the inflation rate could be brought down to, say, 1 per cent a year and that at the same time unemployment could be reduced by half. A more realistic goal - with inflation at, say, half its present rate and unemployment in the major economies reduced to, say, 5.5 per cent - would be worth a great deal, and perhaps, if improvement of that magnitude were clearly visible, natural forces could be counted on eventually to do the rest.

To lower the inflation rate and raise employment through demand calls for reducing demand in order to attain the first objective and raising it in order to secure the second. Of course no country can simultaneously adopt both policies. Instead each country shifts its priorities so that at one time it declares that its major goal is the control of inflation, and then when unemployment begins to soar it reverses its priorities. But a package of such contradictory policies seems to be no less doomed to failure. Unemployment would notice and respond to the decline in demand that was intended to cure inflation, no matter how stealthily it was applied.

By contrast, an increase in a country's macro-supply function would tend to lower prices and raise output and employment. The determination of policy would not be buffeted from one side to the other as priorities

were rapidly altered. Attainment of the two goals would call for no more than a steady application of the single policy.

There is already persuasive evidence that such a policy works, or more accurately that shifts in the wrong direction in the macro-supply function have led to an acceleration of the inflation rate and an increase in unemployment. There is also evidence that those few countries, pre-eminently Japan, West Germany, and Switzerland, which have, by design or inadvertence, strengthened their exchange rate, kept wage rates from rising at speeds that far exceeded the growth of productivity, and enjoyed a more rapid gain in productivity than most countries, have managed to do better in restraining inflation. Admittedly, employment and output did not grow in Germany and Switzerland as rapidly as in the United States, Canada, or Italy, but this could be put down to excessive zeal in restraining macro demand.[13]

It would be very difficult for Canada alone to raise her aggregate output by encouraging an increase in her macro-demand function when other countries were restraining any growth in theirs. The combination of a low multiplier and accumulating balance of payments problems would be likely to constrain such an effort. This raises the question whether Canada would face similar constraints if she were to adopt an ambitious policy of shifting the macro-supply function appropriately, by policies that moved the macro-supply curve to the right.

The answer is uncertain. The reduction in prices - or in a dynamic context, the reduction in the rate of inflation - would spell higher exports and lower imports. But working in the opposite direction would be the increase in real income - an increase that would call for an increase in imports. Whether the first effect - the substitution of domestic production for imports, and the substitution of Canadian-produced exports for output from other economies that would otherwise have met demand in markets abroad - would offset the second, is a matter which cannot be predicted. But the examples of West Germany and Japan show that in some circum-

13 Demand restraint in these countries might account for their slower rate of inflation, the strength of their currencies, their more rapid increases in productivity, etc., but the experiences of Britain, the United States at least since the beginning of 1980, and Israel would cast serious doubt upon such an explanation. In any event, appeals of that kind to empirical data when there is no theory or explanation for observed relationships should be looked at with the utmost scepticism.

stances the answer can be favourable. And if the net effect is to strengthen the Canadian dollar, still other gains could be realized. And even if there is an increase in imports, it would surely be much smaller than if the process had been initiated by a rise in Canada's macro-demand function.

What if a program of increasing the macro-supply function were to be adopted by the major economies? Canada would both gain and lose in her own efforts to lower the inflation rate and secure an increase in aggregate output. Her loss would be that only if she had more success in shifting supply than the others would her trade balance become more favourable; and she could not count on being able to strengthen her currency. Canada's gain would arise from being able to purchase goods and services from abroad[14] at prices in supplier-countries' currencies that were declining, or increasing at a lower rate. She would also gain protection from a possible adverse change in her balance of payments from the increase in income in other countries.

A demand-induced reduction in the inflation rate would be likely, as I have pointed out earlier, to precipitate a crisis - possibly not cataclysmic but probably severe - in financial markets; my analysis has focused upon the international financial mechanism, but unless the central banks of the major economies acted with great vigour and speed, that crisis could engulf domestic financial mechanisms too. Does anything of the sort have to be feared if policies are directed not to lowering demand, or keeping it from rising, but instead to raising supply?

So far as we can see, the prospects would be very much less alarming. What matters in establishing the creditworthiness of the debtor is not so much what is happening to price levels but rather what is happening to sales receipts (in the first instance). If an increase in the macro-supply function leads to an increase in amounts demanded and in output, then even if inflation is brought to an end a debtor country's cash flow may continue, for a while anyway, to rise, and that is the crucial factor in keeping it liquid.

We do not mean by this to imply that the danger from adopting measures to increase the macro-supply function would be zero. The growth in the debt of countries and firms that are essentially bad risks may already

14 The OPEC countries have committed themselves to lowering the price of petroleum if world prices fall.

have proceeded too far, and if so it would be important to apply these measures cautiously.[15]

CONCLUSION

It seems clear that policies that concentrate on shifting the macro-demand function are unlikely to ease the dual problems of stagflation. A reduction in demand for the economy's output would help to counter inflation only by throwing so many workers out of their jobs that labour's ability to bargain would grow steadily weaker, and that surely would not promise the peace, tranquility, and level of business confidence required for prosperity. An increase in demand would contribute to solving the unemployment problem, but because Canada's economy is so much more 'open' than those of the United States, Germany, Japan, and France, such an increase in demand would be difficult to achieve. Unless we are prepared to see the Canadian dollar fall well below its current price in terms of other currencies, we cannot get far out of line.[16]

Finally, as we have noted, a sharp reduction in demand or even a sharp decline in its rate of growth would pose a very great threat of world-wide financial collapse, although Canada acting alone could scarcely precipitate such a collapse. Yet, if Canada were to reduce demand or its

15 But given the numerous political and special-interest obstacles to applying most of them, there is no reason to expect that the rate at which the supply function is shifted could be fast, even if there were no reason for caution on account of the overhang of debt.)

16 It seems that we could have a better exchange-rate policy than we do. If we can accept a price of, say 75 cents (U.S.) for the Canadian dollar as something less than a disaster, we should end our intervention in support of our currency; if instead we insist that the dollar must not be allowed to fall below 85 cents (U.S.) we should publicly peg the dollar and try to persuade the United States to join us in creating a truly stable exchange rate, for by doing that we could count to a much greater extent upon the public's confidence that the rate is really fixed and therefore on the public's playing a greater role than now in stabilizing it. Moreover the risks of ¶ dealings with the United States would be lessened because exchange risk would be lower. The present arrangement assures us of the worst of all worlds, of which the most visible manifestation is that it invites massive speculation, which is not necessarily stabilizing, just because there are doubts as to how the Bank of Canada will react to any fall below the trigger level; at the same time, for the parties involved, every transaction - an export deal, the purchase of imports, or cross-boundary transactions in securities - are made more costly than they need be.

rate of growth on her own, she would not be able directly to secure reductions in the prices charged for the goods and services she imported (except as she managed to drive the price of the Canadian dollar higher on world markets); nor is there much reason to expect domestic producers to lower the prices they charge.

What hope can be held for policies that aim at the country's macro-supply function? And especially, would the international constraints on a policy of reducing demand - that the effects on inflation of reducing demand would be negligible but the side-effects of such a policy would be calamitous - be as serious for the proper changes in the macro-supply function?

There are general reasons for hoping that supply policies would help and that appropriate supply moves would not endanger financial stability.

First, most observers now agree that adverse supply shocks have been decidedly important in creating this great stagflation. OPEC's policy on petroleum prices; harvest failures; an unduly rapid run-up of wage rates in all but a very few countries; government price-setting especially for agricultural products but also for utilities, for trucking, for wages of labour with earnings in the lowest range, and even for postal services and public transportation; tax policies that seem to have been insensitive to the fact that some taxes enter directly into costs and so into prices, while others, not treated as direct costs, have a smaller effect on prices; government regulations, business practices, and working rules that weaken competition, discourage innovation, and so slow down the growth of productivity; and policies that are intended to encourage business investment outlays by restricting the demand for the products of business capital goods - all these (and more) have caused this malaise.

If adverse supply shocks have been so influential in creating stagflation, it is difficult to believe that we cannot create favourable supply shocks in the 1980s. The taxes that do the most harm can be lowered and, if necessary, replaced with less harmful taxes; interest rates can be reduced; the exchange-rate <u>can</u> be raised by using the proceeds of large foreign loans to support it; regulated prices can be reduced and if, for instance, egg producers need more income, they can be bailed out, as Chrysler's stockholders have been and as others will be with direct grants which, while they may not be completely equitable, would at least contribute to easing the 'inflation' part of our present problem. Measures to

reverse our recent sorry history of productivity change could be adopted, and they would almost certainly have to include encouragement for private investment projects, which would constitute one stone that if aimed correctly could help kill both birds - inflation and unemployment. And in such an atmosphere, with real incomes rising, labour might lessen its demands for wage increases and return to the happier economic climate of the period between the end of the war and 1970.

Would it be possible for Canada to go it alone? Certainly not all the way. Canada, as an open economy, would face difficulties in protecting itself fully from the rising prices of imports, though it could do far more than it has yet done. And insofar as our competitive position in international markets were to increase, we might find ourselves in the position occupied by Germany and Japan, but perhaps better able to sustain it because of our own energy sources.

Obviously there are serious difficulties to be faced. One is the task of persuading those who make policy that such a program is needed for our present situation. As the record of failure in fighting inflation or recession by restricting demand lengthens, persuasion may become easier. And it will grow easier too as the realization grows that the policies put forward in this paper are old and respectable though they have been forgotten because for several decades we have been able to use, with advantage, a new toy that for the forty years before 1971 was perfectly appropriate. But persuasion is the lesser task.

A far more serious task will be to deal with the obstacles to implementing these policies that special interests will surely raise. First, it must be remembered that the private gains from supply-induced inflation are not sigificantly less than the private losses. Efforts to restrain inflation will surely meet the opposition of those who would like to have inflation eased, but not if that meant that more Japanese cars would enter the country; that egg and milk prices would fall to levels that would clear free markets; that tariffs against textiles would be lowered; that interest rates would decline; that new taxes might be imposed when some of the taxes in the present program were reduced; that penalties would be far more severe for firms and professional organizations that chose to strengthen their monopoly power; that labour might have to face special tax penalities for exploiting its market power and so too might the employer; and that government-determined prices would be set not only with

the aim of maintaining producers' income - whether it be Hydro, Bell, public transit, the Post Office, airlines (though why not more competition here and a free market to set fares?) - but also with the aim of preventing leftward shifts in the macro-supply function, except where there are very strong negative externalities to production or consumption.

But is this menu is unappetizing, consider the alternatives!

Speakers and panelists

CARL E. BEIGIE
President, C.D. Howe Research Institute

JOHN BOSSONS
Professor of Economics at the Institute for Policy Analysis,
University of Toronto

BARRY P. BOSWORTH
Senior Fellow, The Brookings Institution

PAUL DAVENPORT
Assistant Professor of Economics at McGill University

GEORGE E. FREEMAN
Deputy Governor of the Bank of Canada

JOHN GRANT
Director and Chief Economist with Wood Gundy Limited

DOUGLAS G. HARTLE
Professor of Economics at the University of Toronto

GREGORY V. JUMP
Associate Professor of Political Economy at the Institute
for Policy Analysis, University of Toronto

RICHARD LIPSEY
Sir Edward Peacock Professor of Economics at Queen's University

SAMUEL REA
Associate Professor of Economics at the Institute
for Policy Analysis, University of Toronto

T.K. SHOYAMA
Visiting Professor at the School of Public Administration
and the Centre for Pacific and Oriental Studies,
University of Victoria

MICHAEL A. SPENCE
Professor of Economics and Business Administration
at Harvard University

LORIE TARSHIS
Senior Research Associate, formerly Research Director and Executive Secretary, at the Ontario Economic Council

LESTER THUROW
Professor of Economics at Massachusetts Institute of Technology

REFERENCE COPY

HC
117
.S741
.P766
v.2

Ontario Economic Council

Policies for stagflation.

Ontario Economic Council Papers

Special Research Reports
1980 Series

Energy Policies for the 1980s: an economic analysis
Developments Abroad and the Domestic Economy

Copies of this publication are available at a nominal charge from the Ontario Government Bookstore, 880 Bay Street, Toronto, for personal shopping. Out-of-town customers should write to Publications Services Section, 5th Floor, 880 Bay Street, Toronto, Ontario, M7A 1N8. Telephone 965-6015. Toll-free long distance 1-800-268-7540; in North Western Ontario 0-Zenith 6-7200.

ISSN 0225-591X

ISBN 0-7743-6132-8